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Memorandum

To: Transportation Advisory Committee Town of Arlington Department of Public Works 730 Massachusetts Avenue Arlington, Massachusetts 02476 Date: May 20, 2005

Project No.: 09145.00

From:

Donald J. Cooke, P.E., P.T.O.E.

Joseph G. Quitter

Re: Traffic Justification Memorandum

Massachusetts Avenue Improvements

Arlington, Massachusetts

INTRODUCTION

Vanasse Hangen Brustlin, Inc. (VHB) has completed a preliminary review, evaluation and recommendations of improvements of the current transportation trends in terms of vehicular, pedestrian, bicyclist traffic, parking, and transit conditions along Massachusetts Avenue (Route 2A), between Mill Street and Alewife Brook Parkway in Arlington, Massachusetts. This effort is in support of the Town's desire to pursue State and/or Federal funding for implementation of needed transportation improvements along the corridor.

To facilitate our review and evaluation, VHB compiled existing traffic data and associated information including previously completed designs and studies, from the Town of Arlington, and recent crash data from the Massachusetts Highway Department (MassHighway). As part of the corridor study, VHB has recommended modifications to the current roadway cross section and traffic controls that are intended to improve the safety and mobility of the area users. This memorandum documents the results of an initial capacity and safety analysis along the corridor, and a review of the current roadway cross sectional elements, and identifies conceptual-level improvements for consideration, the anticipated construction cost of these measures.

EXISTING AND FUTURE CONDITIONS

Study Area

Massachusetts Avenue is the main east-west thoroughfare in the Town of Arlington, with a functional classification of Urban Principal Arterial. For this study, the transportation trends along the Massachusetts Avenue corridor were analyzed between Mill Street (near Arlington Center) and Alewife Brook Parkway (at the Cambridge border), approximately 1.6 miles.

Within the project limits, Massachusetts Avenue is approximately 65 feet (+/-) wide, with the exception at Lake Street between Oxford Street and Windsor Street where the corridor widens to 80 feet (+/-). There are typically two travel lanes in each direction with parallel parking on both sides of roadway, although in many areas lane definition is poor.

Sidewalks of varying width are provided along both sides of Massachusetts Avenue throughout the study area. Crosswalks are provided at all signalized intersections, at several unsignalized intersections, and at selected mid-block locations.

There are 45 intersecting streets along Massachusetts Avenue within the study limits. Of the total amount, six of the intersections are signalized (the Massachusetts Avenue intersection with Mill Street, Pleasant Street, Medford Street, Franklin Street, Lake Street, Thorndike Street, and Alewife Brook Parkway), 5 intersecting roadways are either used as a commuter cut through, or have been identified by the Town as trouble spots (Water Street, Tufts Street, Bates Road, Orvis Road, and Winter Street), and the balance of the roadways are entrances to residential neighborhood, that are local streets that are not used for cut through traffic at peak times of the day. For the purposes of this safety and capacity evaluation, the local street intersections were not analyzed for vehicular improvements.

Traffic Volumes

The Town of Arlington has provided information regarding traffic volumes for roadway segments and at specific intersections in the form of previous traffic studies along the Massachusetts Avenue corridor. A majority of this information was collected from previously conducted Massachusetts Avenue corridor studies dated December 11, 2001 and November 2002.

Although the traffic volumes were counted four years ago, this data can be considered current for the purposes of this preliminary study since the relatively stagnant economy and population growth over the last several years has resulted in negligible increases and, in some cases, decreases of traffic volumes throughout the region. Therefore, any growing of the traffic volumes data to develop present-day data would be overly conservative and was not completed. As project development continues, complete peak hour and daily traffic volumes should be collected for the entire corridor.

Based on the information included in previous studies and the accepted standard set by MassHighway for projecting traffic in this area, an annual growth rate of 1.0 percent (approximately 10.5 percent compounded over 10 years) was applied to the 2005 Existing volumes to develop the 2015 Future volumes. A summary of these traffic volumes is shown in Table 1.

Table 1
Roadway Segment Traffic Volume Summary

<u> </u>			2005 Existin	g Volumes ^b	2015 Future	Volumes °
Massachusetts Avenue:	Period	Directional Distribution °	Eastbound	Westbound	Eastbound	Westbound
From Pleasant St to	Weekday Morning	51% WB	1,113	1,137	1,229	1,256
Medford St/ Broadway St	Weekday Evening	53% EB	1,239	1,093	1,369	1,207
From Medford St / Broadway St to	Weekday Morning	59% WB	887	1,303	980	1,439 ·
Linwood St	Weekday Evening	53% EB	967	856	1,068	946
From Linwood St to	Weekday Morning	63% EB	1,116	654	1,233	722
Lake St	Weekday Evening	53% EB	981	872	1,084	963
From Lake St to	Weekday Morning	57% EB	967	726	1,068	802
Thorndike St	Weekday Evening	51% WB	857	902	947	996
From Thorndike St to	Weekday Morning	60% EB	919	616	1,015	680
Alewife Brook Pkwy	Weekday Evening	54% WB	715	847	790	936

Source: Based on data from Massachusetts Avenue corridor studies conducted by the Louis Berger Group, Inc. dated December 11, 2001 and November 2002.

directional distribution of peak period traffic

EB = Eastbound; WB = Westbound

As shown in Table 1, approximately 1,560 to 2,330 vehicles per hour travel along Massachusetts Avenue during the weekday peak hours. The morning directional split is as high as 63% eastbound indicating the commuting nature of the AM peak hour. The directional split is relatively even during the evening peak hour, ranging from 53 percent eastbound to 54 percent westbound along the corridor. This indicates that Massachusetts Avenue within the study area, while used by

b peak period traffic volume, expressed in vehicles per hour

²⁰⁰⁵ volumes grown by 1.0 percent for ten years

commuters, is not exclusively a commuter route during the evening peak period.

According to recent traffic data collected at MassHighway permanent count station 4935, approximately 19,700 vehicles travel along Massachusetts Avenue south of Avon Place during the average day. This means approximately 10 percent of daily traffic travels along this segment of Massachusetts Avenue during the peak hours. The traffic count data compiled is contained in the Appendix.

It should also be noted that the traffic volumes traveling east bound on Massachusetts Ave drop 21% during the evening peak, and 20% during the morning peak period through the intersection of Mass Ave and Medford Street/Broadway. This is due to the high volume of traffic traveling along Broadway as an alternate route to Alewife Brook Parkway, and beyond.

Plans number 1 through 4 (out of 4) included herein present the morning (AM) and evening (PM) peak hour turning movement volumes at major corridor intersections for which data was available.

Vehicular Crash Summary

To identify potential vehicle crash trends in the project study area, vehicular crash data for intersections within the study area was obtained from MassHighway for the years 2000 through 2002, the most recent three-year history available and the Arlington Police Department from 2002 to 2005

MassHighway Vehicle Crash History

A summary of the MassHighway vehicle crash history is presented in Table 2. The following intersections are above the MassHighway District 4 crash rate of 0.87 crashes per million entering vehicles (mev) for signalized intersections:

- Massachusetts Avenue at Mystic Street and Pleasant Street (1.12)
- Massachusetts Avenue at Alewife Brook Parkway (1.15)

As shown in Table 2, based on MassHighway crash data, the signalized intersections at Mystic Street/Pleasant Street and at Alewife Brook Parkway experienced 44 and 55 crashes over a three-year period. A high percentage (55 and 36 percent, respectively) of these crashes were rear end-type collisions, occurring during the typical work week during daylight hours, and on dry pavement, indicating that weather is not likely a contributing factor. Furthermore, a significant percentage of the crashes at the locations (34 and 22 percent, respectively) involved personal injuries. For these signalized intersections, the probable causes for rear-end collisions could include excessive speed and inadequate signal visibility and/or timing for the specific volume conditions¹.

The signalized intersections at Alewife Brook Parkway, Mill Street/Jason Street and at Lake Street also experienced a high percentage (40, 62 and 63 percent, respectively) of angle-type incidences. For these intersections, the probable causes for angle collisions include a large number of turning vehicles, excessive speed, and inadequate signal phasing and/or timing for the specific volume conditions.

The number of crashes at the unsignalized intersections that were part of this evaluation was relatively low. In most cases, the majority of these crashes were angle-type collisions, occurring during the typical workweek and on dry pavement, indicating weather is not a likely contributing factor. Furthermore, a significant percentage of the crashes at Bates Road and at Grafton

¹ Highway Safety Engineering Studies Procedural Guide; United States Department of Transportation (USDOT); Washington, DC; June 1981.

Street/Orvis Street (50 and 63 percent, respectively) involved personal injuries. Probable causes for this type of crash include a high approach speed and high volume approaches to this intersection.

There were 56 accidents that occur within the study corridor at the local street intersections with Mass Ave. In addition, there were 52 accidents along the corridor within the study area, and away from any intersecting streets. The data also identified 86 accidents along the entire length of Mass Ave that did not have a land mark identified. The types of accidents that were along the corridor were similar to those documented at the intersections: angle-type collisions, occurring during the typical workweek and on dry pavement, indicating weather is not a likely contributing factor. The raw data, and summary of these intersections are included in the appendix.

It should be noted that, based on MassHighway crash data, a statistically large percentage (88 percent) of the crashes that occurred during this three-year period happened during the first two years (2000 and 2001). Possibilities for this anomaly include fewer *reported* crashes as a result of changes to law enforcement/insurance reporting policies, recent roadway or intersection improvements, and/or, unfortunately, unreliable data for 2002.

Arlington Police Department Vehicle Crash History

In order to review crash history that involved pedestrians and bicyclists long the Massachusetts Avenue corridor, accident data was also collected from the Arlington Police Department from 2002 to 2005. As shown on the summary table and the raw data in the appendix, there were 66 crashes that occur on the corridor that involved either pedestrians or bicyclists. The accident data collected indicated that the accidents occurred at various locations along Mass Ave, during mostly dry conditions during daylight hours.

Massachusetts Avenue Improvement Project Arlington, MA

Vehicle and Pedestrian/Bicycle Accidents 2002 - 2005 data from the Arlington Police Department

Adington	7/1/2000	12/31/2002					
Crash Date	Crash_Time	Crash_Type	Road_Surface	Lighting		Street	Intersection
1/12/2002	10:00:00 AM	Pedestrian	DRY	DAYLIGHT	CLOUDY	MASS AVE	
1/29/2002	5:12:00 PM	Bicyclist	DRY	Dark(Road Lit)	CLEAR	MASS AVE	swan
5/20/2002	12:30:00 PM	Bicyclist	DRY	DAYLIGHT	CLEAR	MASS AVE	MILL ST
5/22/2002	7:45:00 AM	Bicyclist	DRY	DAYLIGHT	CLEAR	MASS AVE	MILL ST
5/24/2002	4:54:00 PM	Pedestrian	DRY	Daylight	CLOUDY	MASS AVE	
6/3/2002	6:17:00 PM	Bicyclist	DRY	Daylight	CLEAR	MASS AVE	•
7/1/2002	4:10:00 PM	Bicyclist	DRY	Daylight	CLEAR	MASS AVE	
7/10/2002	5:10 PM	Bicyclist	DRY	DAYLIGHT	CLEAR	MASS AVE	quin
7/11/2002	10:15 AM	Bicyclist	DRY	DAYLIGHT	CLEAR	MASS AVE	
7/12/2002	6:00 PM	Bicyclist	DRY	DAYLIGHT	CLEAR	MASS AVE	
9/5/2002	10:55 AM	Pedestrian	DRY	DAYLIGHT	CLEAR	MASS AVE	
9/24/2002	8:46 AM	Bicyclist	DRY	DAYLIGHT	CLEAR	MASS AVE	
11/13/2002	3:27 PM	Pedestrian	wet	DAYLIGHT	rain	MASS AVE	
12/11/2002	11:45 AM	Pedestrian	DRY	DAYLIGHT	CLEAR	MASS AVE	
3/2/2003	6:35 PM	Pedestrian	wet	Dark(Road Lit)	CLOUDY	MASS AVE	
3/12/2003	3:17 PM	Pedestrian	DRY	DAYLIGHT	CLEAR	MASS AVE	
4/29/2003	5:57 PM	Pedestrian	DRY	DAYLIGHT	CLEAR	MASS AVE	park
5/9/2003	3:46 PM	Bicyclist	DRY	DAYLIGHT	CLEAR	MASS AVE	school
5/10/2003	10:20 AM	Bicyclist	DRY	DAYLIGHT	CLEAR	MASS AVE	melr
5/3/2003	7:28 PM	Bicyclist	DRY	DAYLIGHT	CLEAR	MASS AVE	
9/22/2003	8:30 AM	Bicyclist	DRY	DAYLIGHT	CLEAR	MASS AVE	
12/4/2003	5:06 PM	Pedestrian	DRY	Dark(Road Lit)	CLEAR	MASS AVE	
12/24/2003	5:45 PM	Pedestrian	wet	Dark(Road Lit)	rain	MASS AVE	MILL ST
2/28/2003	1:30 AM	Bicyclist	DRY	DAYLIGHT	CLEAR	MASS AVE	
6/18/2004	11:33 AM	Pedestrian	wet	DAYLIGHT	rain	MASS AVE	
7/1/2004	11:33 AM	Pedestrian	DRY	DAYLIGHT	CLEAR	MASS AVE	
7/17/2004	12:50 PM	Pedestrian	DRY	DAYLIGHT	CLEAR	MASS AVE	
8/13/2004	4:10 PM	Bicyclist	DRY	DAYLIGHT	CLEAR	MASS AVE	mara
9/1/2004	9:14 AM	Pedestrian	DRY	DAYLIGHT	CLEAR	MASS AVE	
9/26/2004	4:30 PM	Bicyclist	DRY	DAYLIGHT	CLEAR	MASS AVE	
10/4/2004	8:00 AM	Pedestrian	DRY	DAYLIGHT	CLEAR	MASS AVE	
10/7/2004	8:55 AM	Bicyclist	DRY	DAYLIGHT	CLEAR	MASS AVE	
10/20/2004	6:10 PM	Bicyclist	DRY	Dark(Road Lit)	CLEAR	MASS AVE	
11/1/2004	6:00 PM	Pedestrian	DRY	Dark(Road Lit)	CLEAR	MASS AVE	
12/28/2004	1:22 PM	Pedestrian	DRY	DAYLIGHT	CLEAR	MASS AVE	
1/10/2005	1:50 PM	Pedestrian	wet	DAYLIGHT	CLEAR	MASS AVE	mara
1/11/2005	7:06 PM	Pedestrian	wet	Dark(Road Lit)	CLEAR	MASS AVE	milt
2/20/2005	2:15 PM	Pedestrian	DRY	DAYLIGHT	CLEAR	MASS AVE	park
3/30/2005	3:30 PM	Pedestrian	DRY	DAYLIGHT	CLEAR	MASS AVE	
4/1/2005	3:30 PM	Pedestrian	DRY	DAYLIGHT	CLEAR	MASS AVE	water
4/1/2005	4:00 PM	Bicyclist	DRY	DAYLIGHT	CLEAR	MASS AVE	melr
4/7/2005	10:13 PM	Pedestrian	DRY	Dark(Road Lit)	CLOUDY	MASS AVE	
	11:00 AM	Bicyclist	DRY	DAYLIGHT	CLEAR	MASS AVE	plea
4/21/2005	9:45 AM	Bicyclist	DRY	DAYLIGHT	CLEAR	MASS AVE	meno
6/7/2005	3:12 PM	Pedestrian	DRY	DAYLIGHT	CLEAR	MASS AVE	
6/7/2005 Source: Arlington P		. Cassilar	2				

TRAFFIC OPERATIONS ANALYSIS

Level-of-Service Criteria

Level-of-service (LOS) is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure of the effect of a number of factors including roadway geometry, speed, travel delay, freedom to maneuver, and safety. Level-of-service provides an index to the operational qualities of a roadway segment or an intersection. Level-of-service designations range from A to F, with LOS "A" representing the best operating conditions and LOS F representing the worst operating conditions. For urban areas such as the Massachusetts Avenue corridor, LOS "D" or better are generally considered acceptable levels of service.

Level of Service Analysis

For an urban arterial such as Massachusetts Avenue, overall corridor capacity is defined and restricted by the major (signalized) intersections along its length. While the number of travel lanes in each direction (i.e., one or two) plays a role, the proximity of signalized intersections governs and travel lanes provided are more related to properly processing traffic demand at the signalized locations (i.e., approach and departure lane configurations). Therefore, to fully evaluate and establish corridor capacity and operating conditions, VHB preliminarily analyzed the capacity provided at key intersections.

To establish existing conditions, VHB conducted capacity analyses using the critical lane volume (CLV) method to determine the traffic capacity at six key study area signalized intersections during the weekday morning and evening peak hours using the 2005 existing, and 2015 future volumes. The future 2015 LOS is presented for the No-Build, or no improvement case. There are a total of eight (8) signalized intersections within the section of Massachusetts Avenue studied; however, traffic volumes were not available for the intersections at Mill Street.

Table 3 presents a summary of the capacity analyses for the six key study area intersections in the absence of any improvements. The capacity analyses worksheets are included in the Appendix.

Table 3 Intersection Capacity Analyses Summary

	į	2005 Existin	ng Volumes	2015 Future	<u>Volumes</u>
Location	Period	CLV '	LOS b	CLV	LOS
Massachusetts Avenue at	Weekday Morning	1,353	E	1,495	F
Pleasant Street (Route 60)	Weekday Evening	1,362	E	1,503	
Massachusetts Avenue at	Weekday Morning	878	B	970	B
Medford Street	Weekday Evening	833	A	921	B
Massachusetts Avenue at	Weekday Morning	506	A	556	A
Linwood St/Foster St	Weekday Evening	528	A	581	A
Massachusetts Avenue at Lake Street	Weekday Morning Weekday Evening	1,205 1,112	C	1,345 1,243	E
Massachusetts Avenue at	Weekday Morning	476	A	526	A
Thorndike St/Teel St	Weekday Evening	466	A	514	A
Massachusetts Avenue at	Weekday Morning	1,388	F	1,422	F
Alewife Brook Pkwy	Weekday Evening	1,423		1,572	F

a critical lane value

The analysis indicates that the intersections at Pleasant Street and at Alewife Brook Parkway currently operate at unacceptable levels of service (LOS "F") during both peak hours. Furthermore, it is anticipated that the Lake Street intersection will operate at LOS E or worse in the future if no improvements are in place. The other intersections analyzed operate at LOS B or better and are expected to operate at LOS C or better in 2015.

RECOMMENDED IMPROVEMENTS

Based on field observations, traffic volume research, vehicular crash analysis and intersection capacity analysis, VHB identified and evaluated possible opportunities for improvements intended to enhance the safety and mobility for all corridor users. It is envisioned that the recommendations from this study will be further evaluated, refined and detailed through design via the work of the Transportation Advisory Committee (TAC).

The following highlights the major opportunity areas for continued discussion and evaluation:

- Overall corridor cross section and cross sectional elements
- Bicycle accommodation
- Pedestrian accommodation
- Traffic signal safety and operations
- Overall corridor safety
- Aesthetic and urban design enhancements

VHB reviewed the corridor as a whole, and at specific locations to identify possible areas for modification and improvement. The existing and projected future poor operating conditions and safety history (see Tables 2 and 3) at the intersections of Pleasant Street, Lake Street and Alewife Brook Parkway lead to the conclusion that major changes which could limit capacity are not preferable at these locations. Any proposed improvements at these locations need to include the potential for enhancing both capacity and safety. However, significant capacity enhancements (i.e., major widening) are unlikely due to the constraints associated with current cross sectional elements. Improvements at these locations will most likely be implemented within the existing curb-to-curb roadway width and be limited to traffic signal (timing and phasing) modifications in an attempt to optimize operations and safety. A detailed review of signal sequence, timing and equipment can be

b level of service

c No-Build (i.e., no improvement) condition

completed at these locations during further project development in an attempt to identify recommended traffic control upgrades.

The most significant opportunity identified for proposed change to the corridor is the potential reduction of the cross-section from four lanes to two lanes (one travel lane in each direction) east of the Medford Street/Broadway intersection, narrowing Massachusetts Avenue vehicular travel way from Franklin Street to Grafton Street (approximately one-half mile). This reduction in cross section would need to be expanded to accommodate current and future traffic demand at Lake Street, but then narrowed again to the east, between Marathon and Lafayette Streets (approximately 1750 feet). Massachusetts Avenue would be expanded, east of Lafayette Street, to accommodate the traffic demand at the Alewife Brook Parkway intersection (Refer to Sheets 1 through 4 attached). The potential reduction to a two-lane cross-section along these portions of Massachusetts Avenue is possible due to the significant amount (approximately 20 percent) of traffic turning to/from Broadway. The resulting lower corridor traffic volumes, thus a reduction of roadway capacity within these sections allow consideration of a reduced cross sectional width for the vehicular travel way that could be utilized for other modes of transportation (either bicycle or pedestrian), or improved streetscape along the corridor.

The detailed design of the reduced travel way cross section will need to consider the need to allow for traffic making left turns from Massachusetts Avenue to adjacent roadways, residents and businesses. The vehicular travel lanes must be a minimum of 16 feet for through traffic and emergency vehicles to pass around a stopped vehicle on Massachusetts Ave. Although the lane width will be designed with a wider cross section than typical (16 feet verses 12 feet), the overall pavement width will be reduced, thus making the pedestrian passage across Mass Ave shorter, improving pedestrian mobility and safety.

The conceptual improvements plans provided herein (plans 1 through 4) detail the potential reallocation of the roadway width gained in the reduced cross sectional areas east of Medford Street/Broadway, detailed above. For example, the possible introduction of a 4-5 foot bicycle lane. This lane, in conjunction with better bike accommodation at traffic signals (i.e., bicycle detection) and enhanced signage throughout the corridor offers an opportunity to provide a more inviting and safe environment for bicycle traffic.

The additional space gained by reducing the Massachusetts Avenue cross section in selected areas could be utilized in any number of ways besides (or in combination with) bicycle enhancements, including wider sidewalks, center medians, planting strips, etc. The benefits and costs of these options can be further evaluated during future project development. In any event, the re-evaluation of the Massachusetts Avenue corridor cross section affords an opportunity to better define the existing lane definition, which in many areas is currently poor, with extended sections of wide, undefined pavement provided.

A re-evaluation of the corridor also provides an opportunity to enhance the overall pedestrian environment. As part of project development, the current location of all pedestrian crosswalks will be evaluated to determine the most appropriate locations. Highlighted crosswalk markings and signage, use of alternate crosswalk materials, improved street lighting in crossing areas, and the proper use of "neckdowns" (narrowing the roadway by extending the curb at key intersections and mid-block locations) will be considered. The conceptual improvement plans provided (Refer to Sheets 1 through 4) detail a number of potential locations for the implementation of neckdowns for enhanced pedestrian movements. These neckdown areas will be designed to improve sight lines and visibility of crossing pedestrians, shorten crossing distances, and serve as a traffic calming technique to slow traffic in areas of pedestrian activity. The neckdowns also have the added benefit of providing new space to be considered for possible aesthetic enhancements.

During future project development a complete evaluation of pedestrian phasing, signal indications and signage should also be undertaken at all signalized locations. An overall theme to these, as well

as other alternative actions, is the need to continue to consider the effects of proposed corridor modifications on vehicle, pedestrian and bicycle safety.

Tied to some of the opportunities discussed above, but also worth discussion as a stand alone topic is the upgrade and potential coordination of several traffic signal systems. This is important because the signalized intersections govern the flow of traffic along Massachusetts Avenue. In a few cases they are closely spaced, but do not facilitate acceptable traffic progression through the corridor. The upgrade and coordination of these traffic signal systems could improve the overall operation along the corridor. Existing traffic signal phasing and lane configuration also needs to be reviewed, with sensitivity towards addressing the high accident experience at many of these locations.

All proposed improvements and modifications will need to consider potential impacts to on-street parking and other related business activities (i.e., loading/unloading), as well as transit stops on the corridor. The continued maintenance of an adequate level of on-street parking is critical to overall community acceptance of proposed improvements.

Table 4 presents a brief summary of the potential improvement opportunities along the corridor.

Table 4
Recommended Transportation Improvements Summary

Massachusetts Avenue:	Existing Conditions	Proposed Improvements
From Mill St to	Two lanes per direction	Maintain existing two lanes per direction with additional turning lanes at intersections as necessary
Franklin St	Several unprotected sidewalks	2. Upgrade and coordinate traffic signals
(Arlington Center)	On street parking	Provide neck-downs at unsignalized crosswalks
	an Paul Color	4. Maintain existing parking
From Franklin St to	Two lanes per direction	1. Narrow to one travel lane per direction with additional turning lanes as necessary
Grafton St	Several unprotected sidewalks	2. Upgrade traffic signals
	On street parking	3. Provide neck-downs at unsignalized crosswalks
	V and the second	4. Maintain existing parking
		5. Create a five-foot marked bicycle lane
		Widen existing sidewalks or provide planting strip, where possible
From Grafton St to	Two lanes per direction	Transition back to two lanes per direction with additional turning lanes at
		intersections as necessary
Marathon St	Several unprotected sidewalks	2. Upgrade traffic signals
(Lake Street District)	On street parking	Provide neck-downs at unsignalized crosswalks
,	**************************************	4. Maintain existing parking
	-	5. Continue the bicycle lane on the south side of Massachusetts Avenue only
From Marathon St to	Two lanes per direction	1. Narrow to one travel lane per direction
Alewife Brook Pkwy	Several unprotected sidewalks	2. Upgrade traffic signals
	On street parking	Provide neck-downs at unsignalized crosswalks
		4. Maintain existing parking
		5. Bicycle lane provided on both north and south side of Massachusetts Avenue

In order to assess the impact of the conceptual level improvements detailed herein and on Sheets 1 through 4 attached, VHB evaluated intersection operations. Table 5 presents a summary of the existing, and future (with and without a reduced cross section) operations at the two locations along the Massachusetts Avenue corridor affected by the proposed travel way reduction. All other locations along the corridor are not within the location of the proposed reduction.

Table 5
Intersection Capacity Analyses Summary

		2005 Existi	ng Volumes	2015 Futur	e Volumes ^e	2015 Futur	2015 Future Volumes ^e	
Location	Period	CLV,	LOS b	CLV	LOS	CLV	LOS	
Massachusetts Avenue at	Weekday Morning	506	A	556	A	1,014	C	
Linwood St/Foster St	Weekday Evening	528	A	581	A	1,115	C	
Massachusetts Avenue at	Weekday Morning	463	A	526	A	1,005	C	
Thorndike St/Teel St	Weekday Evening	452	A	514	A	981	B	

a critical lane value

As can be seen by the table, although the peak hour LOS is expected to drop at Linwood/Foster and Thorndike/Teel Streets, the anticipated future 2015 LOS is no worse than a very acceptable LOS "C". Based on this analysis, it is assumed that the cross sectional width for the sections along Massachusetts Avenue, east of Broadway (detailed above), can be reduced without significant impact to vehicle operations.

b level of service

No-Build (i.e., no improvement) condition

d With Improvements (i.e., reduced cross section)

CONCLUSION

VHB has conducted an assessment of the roadway traffic capacity and safety along the 1.6 mile section of Massachusetts Avenue corridor between Mill Street and Alewife Brook Parkway. Based on this evaluation, VHB has identified several improvement opportunities to the current roadway and intersection features that are intended to enhance the safety and mobility for all area users. It is envisioned that the recommendations from this study will be evaluated and progressed through further design and construction via the work of TAC.

The order of magnitude construction cost estimate of these improvements is approximately \$2,420,000. The projected costs are based on the proposed typical sections shown on the conceptual improvement plans (Sheets 1 through 4) and do not include costs associated with design, potential right-of-way acquisition, streetscape enhancements, including landscaping, permitting or police services. The conceptual improvement plan and cost estimate worksheets are provided in the Appendix.

Appendix

- ➤ Observed Traffic Volume Data
- ➤ Safety Information Data from Mass Highway
- ➤ Safety Information Data from Town of Arlington
- ➤ Critical Lane Volume Analysis
- ➤ Cost Estimate

Observed Traffic Volume Data

VHB

Computations

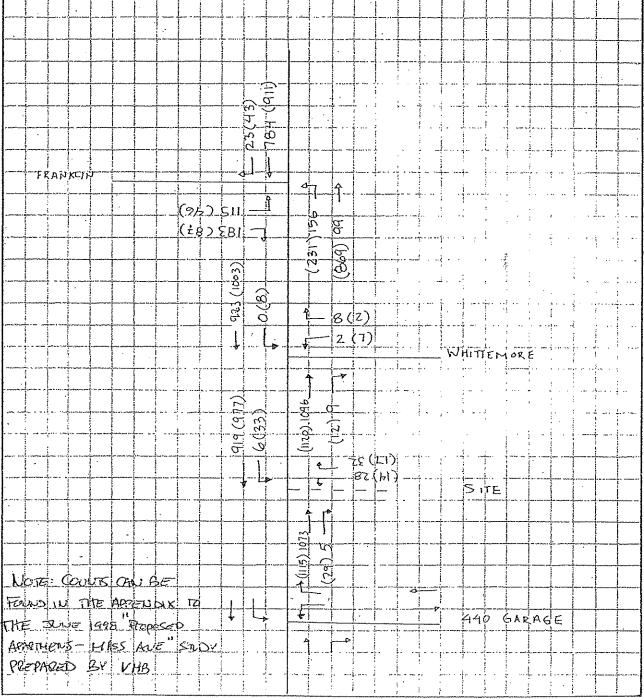
Project APAIZTMENTS Project # 05800

Location AR lington Sheet 1 of

Calculated by EOL Date 5-21-98

Checked by Date

Title 2003 BUILD CONDITIONS



Safety Information Data from MassHighway

Masslighway

CITY/TOWN: ABLINGTON			: 1 (20) 2 (24) 2 (21)	COL	INT DATE :	2002	MHD US	E ONLY
DISTRICT:	UNSIGNA	LIZED:	ะ สารณ์พาก เมื่อใช้เกิด	SIG	GNALIZED :	Line Xire	Source #	
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INTERSECTION DIAGRAM (Label Approaches)	Neutr	1149	756 • • • • • • • • • • • • • • • • • • •	255 255	1000		INTERS REF#	ECTION
APPROACH:	1 ~-	2 P	eak Hour 3	Volumes 4	5	6		
DIRECTION:	1919 X 1973	SB	ÉB	WB				
VOLUMES (PM):		756	1149	1070				
"K* FACTOR:	(10.09 A	PPROACH	ADT:	35888.889	ADT = TOTAL	. VOL/"K" FACT.		
TOTAL # OF ACCIDENTS :	tomation the little and the second	OF ARS:	3		GE#OF ITS(A):	15		
CRASH RATE CALCULATION:		1.12	RATE =		00,000) 365)	emokalna doka 1 fi kidana dala 1 fi 1 f		
Source (optional): Distric 4-crast	rrate is 0.87 per r	nev for sigi	nalized inte	rsections.	1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m			

MassHijhway

CITY/TOWN: AREINGTON			COU	NT DATE:	2002	мн	USE ONLY
DISTRICT: #	UNSIGNALIZED	:	SIGI	VALIZED :		Sour	ce #
	~ INTERSECTION	ON DATA ~	100 F 100 S 100 S 100 F	18 AN JAMES A SERVICE DE LA PRINCIPA DE L'ARGEST DE L'ARGEST DE L'ARGEST DE L'ARGEST DE L'ARGEST DE L'ARGEST D	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
MAJOR STREET:	MASSACHÜSETTS A	VÉNUE				RIN	1#
MINOR STREET(S):	MEDEORD STREET					RIN RIL RIL	v#
	#45###################################	a reserving to The State of the				RIL	1#
	FINE CONTROL OF THE C		ia oki isoble Kadarana	r pi mich de rog. Abig espesien ()	i in the	RIN	v#
,	real fraction and the second			ration-thou Repart (176)		RIF	1#
INTERSECTION DIAGRAM	North	1	i i			INT RE	ERSECTION F #
(Label Approaches)							· " L
	12 n	a. S. r. West all refu Francis Communication		272-			
					rvetalee Buiktee		·
		Peak Hour	Volumes		:		
APPROACH:	1 2	3	4	5	6		
DIRECTION:	NB SB	EB	WB-				
VOLUMES (PM):	0 - 0	1247	1272				
*K * FACTOR:	.009 APPRO	ACH ADT :	27655.556	ADT = TOTAL	VOLTK' FACT		
TOTAL # OF ACCIDENTS :	# OF YEARS :	3	AVERAG ACCIDENT		0.		
CRASH RATE CALCULATION:	0.03	BATE =	(A * 1,000 * TCA)		,		
Source (optional): District crash	rate is 0.87 per mev fo	signalized int	ersections.				

Masslighway

CITY/TOWN: AREINGTON				col	INT DATE :	2002	MHD I	JSE ONLY
DISTRICT:				SIC	SNALIZED :	SZX h	Source	#
	va 1				_			
	- IN I	ERSECTION	V DATA ~					
MAJOR STREET	: MASSACHE	ISETTIS AVI	NUE			o de de la composición del composición de la com	RIN #	· []
MINOR STREET(S)	: ENWOODS	STREIT/FOS	TER STREE				RIN #	<u> </u>
	Disputery of CASS	tien de la company					RIN #	
							BIN #	, [
	REFACTO						BIN #	,
	**************************************	Kara sa		Subservation seasons		Santa Sa		' لـــــا
INTERSECTION	North						INITE	RSECTION
INTERSECTION DIAGRAM			######################################				REF	T
(Label Approaches)				a America	826			•
				A				•
		967		26				
		'	Peak Hou	F	<u> </u>	II		
APPROACH:	1	2	3	4	5	6		
DIRECTION:	NB.	SB	LB	WB				
VOLUMES (PM):	26	49	967	826				
"K" FACTOR:	:::0:09∌:::	APPROA	CH ADT :	20688.889	ADT = TOTAL	VOL/K* FACT.		
TOTAL # OF ACCIDENTS :	0	# OF YEARS :	3 -		GE#OF NTS(A):	0		
CRASH RATE CALCULATION:]	0.00	BATE =		000,000) * 365)			
Source (optional): Distric 4 crast	riale is 0.87 p	er mev for	signalized in	tersections:				

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CITY/TOWN: AREINGTON			COU	NT DATE:	2002	MHD USE ONLY
DISTRICT:				,	X	Source #
DISTRICT: General Manageria	ONOIGHALIZEI	Markette (1996)	0.0	11 27 10.00	and the state of t	
**************************************	- INTERSECT	ION DATA ~	************	~^1 & >~4 ~~4 ~~4 ~ > > ~~4 ~~4 PC F ~~~	wbd babb 88wb7wd 4Freto A Freto Freto Fr	
MAJOR STREET	MASSACHUSETTS	AVENUE:		a. o a ja j		RIN#
MINOR STREET(S)	LAKE STREET	yan barran da		form A		RIN#
			SPECIAL CONTRACTOR		1412-15-5994466-15 3-276-56-5875466-15	RIN#
					tropiska s talovi. Vojeni semiska post	RIN#
	Water Park Control of the					RIN#
			ONE STORY OF SAME	20 (CATABASSI)		
INTERSECTION	North					INTERSECTION
DIAGRAM	Aller Colleges					REF#
(Label Approaches)				902		
	8	00 →	F#			
			569			
		Peak Hour	Volumes	<u> </u>		
APPROACH:	1 2	3	4	5 .	6	INTERSECTION REF #
DIRECTION:	SE SE	EB 24	we .			
VOLUMES (PM):	569 0	800	2 ³ 902.			
			0000000	TOTAL	NO PICE EACT	
K FACTOR:	0.09 APPR	OACH ADT:	25233.333	ADI = TOTAL	VOLTK* FACT.	
TOTAL # OF ' ACCIDENTS :	# OF YEARS	CONTROL OF THE CONTROL OF THE	AVERA(ACCIDEN		5	
ACCIDENTS.	Separation and		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
CRASH RATE CALCULATION:	0.58	RATE =	0,1 * A.) TGA.)		•	
Source (optional): Distric 4 crast		I or signalizadio	arconlinne	ing a marging	i militari Militari	
Comments:	maie roidios her mey	or signanzed in	GISCOGOLIS.	·		

Masslighway

CITY/TOWN: ARLINGTON DISTRICT: 4					NT DATE :	2002 X	MHD USE ONLY Source #
DISTRICT CONTRACTOR			N DATA ~				
MAJOR STREET	MACCACHINE	T ES AVE	NINE OF		NO 1414.1		RIN#
MINOR STREET(S)					i in de la companya d La companya de la companya de		RIN#
MINOH STREET(S)		Received the contraction of the		91-21109454445	rener ervolge Televisi		RIN #
	The first of the second of the second		CAMPIN LAW.	<u>aransarten</u> Herriotzak	ikhmanay awe neulikane ah	<u> </u>	
			alian Itepah	era an es			RIN#
							[12]
							INTERSECTION REF #
INTERSECTION	North						INTERSECTION
DIAGRAM			24 (3		**************************************		REF#
(Label Approaches)			.				
		688					
				1 11 128			
			Peak Hou	Volumes			
APPROACH:	1	2	3	4	5	6	
DIRECTION:	NB:	SB	EB: 70	WB?			
VOLUMES (PM) :	28	24	688	847			
, out made (i my		900, 400 WOM # U	The section of the sec	<u> Pirkarang ast</u>		1-30-0-1	
"K" FACTOR:	0.09	APPROA	CH ADT:	17633.333	ADT = TOTAL	VOLYKY FACT.	
TOTAL # OF	2	# OF	3		GE#OF	1	
ACCIDENTS:		/EARS : `	A constitution of the cons	ACCIDEN	ITS(A):		
CRASH RATE CALCULATION:		0.10	RATE =		* 365)		
Source (optional): Distric 4 cras	h rate is 0.87 nei	r mev for	- signalized in	tersections.			
Comments:	entificate de la como possible.	A MANAGERIA	The state of the s	Article Control		***************************************	

Wasslighway

CITY/TOWN: AREINGTON DISTRICT:		NALIZED:			INT DATE :		MHD USE ONLY Source #
	- INTI	ERSECTION	I DATA ~			h homes of each factor of party and the section of	
MAJOR STREET	: MASSACHU	ISETTIS AVI	NUE		EPETERY'S	regul (1917 et al. 15. Sector de la companyone de	RIN#
MINOR STREET(S)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		various paid				RIN#
WINON STREET(S)	• <u>ি এবন্ধ নাম্প্রিক বিশ্</u> যান্তরিক	e de la companion de la compan				Name of the Control o	BIN#
	14 - 15 2 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		(1900) prisk <u>- </u>	<u> Janis (A. S.) - 1988</u> Paras III sara 1884		rengerapera	
	Lit alto di grandi dan a	5 美色 亚 辛		de adolesi del		A STATE OF THE STA	RIN#
		电线线 线		MAR SI			BIN#
INTERSECTION DIAGRAM (Label Approaches)	Nonn ≥	668 668	881 320 320 320 320 320 320 320 320 320 320	1415	968		INTERSECTION REF #
			Peak Hour				
APPROACH:	1	2	3	4	5	6	
DIRECTION:	NB	SB	EB-	1WB	4 c 45 45		
VOLUMES (PM):	1415	-881	668	968			
"K" FACTOR:	0.09	APPROA	CH ADT:	43688.889	ADT = TOTAL	. VOLI"K" FACT.	
TOTAL # OF ACCIDENTS :	55 .	# OF YEARS :	3		GE#OF NTS(A):	18	
CRASH RATE CALCULATION:		1.15	RATE =	(A * 1,0 (ADT	000,000) * 365)		
Source (optional): Distric 4 cras	h rate is 0.87	permey for	signalized int	ersections.			

Wasslighway

CITY/TOWN: ARLINGTON.		1 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	COUNT DATE:	2003	MHD USE ONLY
DISTRICT:		1. The second of	SIGNALIZED:	×	Source #
	- INTERSECTION	DATA ~	,		
MAJOR STREET:	MASSACHUSETTS AVE	manufacture and the first		orangani. Kancamenta	BIN#
	FBANKLIN STREET	ile ikini bir biribi			RIN#
					RIN#
					RIN#
					RIN#
		EN TELESTRATION			
					INTERSECTION
INTERSECTION DIAGRAM	North	133			REF#
(Label Approaches)			954		
	1100				
	是2006年1月2日(1915年1月1日)		Andreas and the second		
	r i	Peak Hour V			
APPROACH:	1 2	3	4 5	6	
DIRECTION:	NB SB	EB	WB		
VOLUMES (PM):	0 133	100	954		
"K" FACTOR:	0.09 APPROAG	CH ADT :	24300 ADT = TOTA	AL VOLFK* FACT.	
TOTAL # OF ACCIDENTS :	# OF YEARS :	3	AVERAGE # OF ACCIDENTS (A):	2	
CRASH RATE CALCULATION:	0.23	RATE =	(A*1,000,000) (ADT*365)		
Source (optional): Distric 4 crass	16 MAN	ignalized inter	sections.		

Afrolation	1/1/2000	12/31/2002	(mails Name)		Rent Sutan	Lighting	Sire	(Intersection)
CHARLE		Chub Vio	Part Control Control	REAREND	WET	Dark(Road Lit)	MASS AVE	PLEASANT ST
1/1/2000	5:00:00 PM 4:00:00 PM	Property Only	Property Only Property Only	REAREND	WEI	Dark(Road Lit)	MASS AVE	PLEASANT ST
1/10/2000	4:00:00 PM	Property Only PROPERTY	PROPERTY	ANOLE	DRY	DAYLIGHT	CORNER MASS AVE	COURT ST
1/12/2001 1/12/2001	7:00:00 AM	INJURY	MJURY	ANGLE	DRY	DAYLIGHT	WASSAW	RT 60 PLEASANT ST MILTON ST
1/13/2000	11:00:00 AM	Hit and Run	Hit und Run	UNKNOWN	Unknown	Unknown	MASS AVE	MASS AVE
1035001	1:00:00 PM	PROPERTY	PROPERTY	ANGLE	WET	DAYLIGHT	wyrań ter Lake st	MASS AVE
1/34/2000	9:00:00 PM	Property Only	Property Only	UNKNOWN	WET	Dark(Rood UII)	MASS AVE	MARATHON ST
1/14/2003	10:00:00 PM	INJURY	INJAY	ANGLE	DRY	DAYLIGHT	MAL STREET	MASSACHUSETTS AVENUE
1/14/2002	9:45:00 AM	Property demage only (none inj	Property damage only (none inj	Angle	loe	DaySphi	EDBERTON RD	MASS AV
1/17/2000	12:00:00 PM	Property Only	Property Only	ANGLE	DRY	Dwylght Dark - Eghted rondwsy	MASSACHUSETTS AVENUE	PLEASANT STREET Ris 50
1/17/2002	5:20:00 AM	Property damage only (none inj	Property change only (none in	Reer-ond	D ₁ WET	DAYUGHT	BOULEVARD RO	MASS AVE
1/19/2001	\$1,00,00 AM	PRICE	MAJRY	ANGLE	אכן סיי	Daylight	MASSACHUSETTS AVENUE	WINDSOR STREET
1/19/2002	3:15:00 AM	Hon-fallal Injury	Non-Intellingury	REAREND	DRY	DAYLIGHT	MASS AVE	HARLOW SY
1/2/2001	1:00:00 PM	PROPERTY	PROPERTY	REAREND	WET	THOUYAG	MASS AVE	MEDFORD ST
1/2/2001	8,00,00 AM	PROPERTY	hýuy Accident	ANGLE	WEY	Dark(Road Lit)	· MASS AV	OR SIVRO
1/23/2000	4:00:00 PM	injury Accident	Property Only	UNKNOWN	DRY	Dnyfight	MASS AVE	PLEASANT ST
1/26/2000	2:00:00 PM 4:00:00 PM	Property Only Property Only	Property Only	ANGLE	Unknows	Daylight	,ADAMS ST	MASSAVE
1/26/2000	1:00:00 PM	Property Only	Property Only	ANGLE	WET	Daylight	MASS AVE	RTE 16
1/27/2001	5:00:00 PM	PROPERTY	PROPERTY	UNKNOWN	WET	DARKIROAD LSD	MASS AVE	MILL ST PLEASANT ST
1/29/2000	1:00:00 AM	Property Only	Property Only	REAREND	DRY	Dark (Road UI)	MASS AVE	MASS AVE
1/30/2000	6:00:00 PM	Injury Accident	Injury Assident	ANGLE	DRY	Dark(Road Ut)	LAKE ST	PLEASANT STRTE 6
1/31/2009	7;00;00 PM	Injury Accident	Injury Accident	REAREND	WET	Derk(Road Lit)	Mass ave Mass ave	PLEASANT ST
1/9/2000	3:00:00 PM	Property Only	Property Only	REAREND	DAY	Daylight 1	TZ MOZAL	MASS AV
10/1/2001	70:00:00 AM	PROPERTY	PROPERTY	UNKNOWN	YAG	DAYLIGHT	MASSACHUSETTS AVENUE	BATES ROAD
19/11/2002	2:40:00 AM	Non-lated injury	Mon-tatel injury	Angle	Wet	Daylight	MARION RD	HASS AVE
19/14/2000	2:00:00 PM	Injury Accident	Injury Assident	rearend Angle	DRY	Daylight DAWN OR DUSK	MASS AVE	GRAFTON ST
1975/2091	5:00:00 PM	PROPERTY	PROPERTY	ANGLE REAREND	WET	DaySght	LAKE ST	MASS AVE
10/16/5000	3:00:00 PM	Property Only	Property Only	REAREND	DBY	DAYLIGHT	PLEASANT ST	MASS AVE
10/10/2001	5:00:00 PM	NUURY Program Onto	INJURY Property Only	ANGLE	DRY	Daylight	ADAMS ST	HASS AVE
10/17/2000	3:00:00 PM 9:00:00 AM	Property Only: Injury Accident	Property Crey Injury Accident	ANGLE	WET	Daylight	allen st	MASS AVE
10/19/2000	9:00:00 A33	NJURY	INXIRY	REAREND	DAY	DAYLIGHT	MASS AVE	MYSTIC ST
10/23/2001	8:00:00 PM	PARAM	INJURY	HEADON	DRY	(TLf GAORIXRAG	MASS AVE	PLEASANT ST MASS AVE
10/23/2001	2:00:00 PM	Property Only	Property Only	REAREND	DRY	Doylight	BATES RD	TOWN HALL
10/24/2001	6:00:00 PM	YRUCH	INJURY	яикиоми	DRY	DARKIROAD LITI	715 MASS AVE	MASS AVE
10/25/2001	12:00:00 PM	PROPERTY	PROPERTY	UNKNOWN	DAY	DAYUGHT	Mill, ST Franklin ST	MASS AVE
19/21/2000	4:00:00 PM	Property Only	Property Only	REAREND	DRY	Doylighi	MASSACHUSETTS AVENUE	LAKE STREET
10/1/2002	NA 00:25:01	Non-fetal leijury	Non-lets! Injury	Angle	Dry WET	Dark - lighted roadway Dark(Road US)	LAFAYETTE ST	36 MASS AVE
10/30/2000	5:00:00 PM	Injury Accident	hijuny Accident	UNKNOWN	DRY	DAYLIGHT	MASS AVE	WATER ST
10/4/2001	5:00:00 PM	YAUKNI	MJURY	UNKNOWN	DAY	Daylohi	MASS AVE	OXFORD ST
10/1/2000	11:00:00 AM	Property Only	Property Only	REAREND	Unknows	thingen	LAKE ST	MASS AVE
10/7/2000	2:00:00 PM	Property Only	Property Only INJURY	PEAREND	DRY	DAYUGHY	RTE 16E	HASS AVE
10/11/2001	7:00:00 AM	INTARA	Property Only	ANGLE	DAY	Doylight	MASS AVE	PLEASANT ST
11/1/2000	12:00:00 PM 7:00:00 PM	Property Only INJURY	INJURY	UNKNOWN		LINKNOWN	MASS AVE	FRANKLIN
11/1/2001	0:00:00 AM	Injury Accident	Injury Accident	ANGLE	WET	Daysgist	MASS AVE	VARNUM ST MASS AVE
11/11/2000		injury Accident	Injury Assistant	ANGLE	DRY	DeA(Road Ut)	CAFAYETTE	MASS AVE MASSACHUSETTS AVENUE
1913/2002	6:30:00 AM		Property damage only (none in)	Angle	AA94	Dan - lighted renderty	MAL STREET	MASSACHUSETTS AVE
51/16/2001	5:00:00 PM	PROPERTY	PROPERTY	UNKNOWN	DRY	DAYLIGHT	MYSTIC STREET MASS AVE	MYSTIC ST
11/18/2000	10:00:00 PM	Irývy Accident	Injury Accident	REAREND	DAY	Daysghi Dark(Road Ui)	CLEVELAND ST	MASS AVE
11/19/2000		Property Only	Property Only	ANGLE	DRY	Dawn or Dush	MASS AVE	MYSTIC
11/21/2000		Property Only	Property Only	ANGLE	DAY	Drykght	MASSAVE	PLEASANT ST
11/22/2000		Property Only	Property Only	REAREND ANGLE	DAY	Dwysght	FOREST ST	MASS AVE
11/25/2000		Property Only	Property Only PROPERTY	UNKNOWN	' WET	EMBYROAD LITT	MASSACHUSETTS AVE	ACADEMY STREET
11/29/2001		PROPERTY	PROPERTY	HEADON	DRY	DAYLIGHT	MASS AVE	WATER ST
11/3/2001	12:00:00 PM 8:00:00 PM	PROPERTY PROPERTY	PROPERTY	UNKNOWN	DRY	DARK(ROAD UT)	MASSACHUSETTS AVE	PLEASANT STREET
11/3/2001		Injury Accident	Injury Accident	REAREND	DRY	Dayson	JASON ST	MASSACHUSETTS AVE
11/30/2000		PROPERTY	PROPERTY	UNKNOWN	WET	DARKIROAD UNUT)	MARATHON STREET	MASSACHUSETTS AVE
11/5/2001	5:00:00 PM	PROPERTY	PROPERTY	REAREND	WET	DARKIROAD UNUT)	MASSACHUSETTS AVE	POND LANE MASS AVE
17/6/2000		Property Cnly	Property Only	ANGLE	DRY	Dark (Road Ut)	ACADEMY ST TEELE ST	MASSACHUSETTS AVE
11/8/2001	8:00:00 PM	PROPERTY	PROPERTY	REAREND	DRY	DARKIROAD LIT)	MASS AVE	PLEASANT ST
12/1/2000	2:00:00 PM	Property Only	Property Only	ANOLE	DRY	Doylight Down or Diok	MASS AVE	WINDSOR ST
12/1/2000		Property Only	Property Only	ANGLE	DAY Sond, mud, 64, 69, gravel	Daylight	MASSACHUSETTS AVENUE Ris 2A	ALLEN STREET
12/13/2000	•	Non-lated Injury	Non-total injury	Not reported ANGLE	Sund, mud, ort, or, gravet DRY	Daylight	LAFAYETTEST	MASS AVE
12/14/2000		injury Accident	Enjusy Accident	Rearrend	Wet.	Daylighi	MASSACHUSETTS AVENUE AL 2A E	MELROSE STREET
12/14/200			Non-labil Injury Property Only	ANOLE	DRY	Daylighi	Franklin St	MASS AVE
12/15/2000			International Information	REAREND	DAY	Dawn or Dusk	MASS AVE	PLEASANT ST
12/15/2004		lnjunj Aoddoni Injunj Aoddoni	injury Accident	UNKNOWN	DRY	ひゃょちゅうさ	MASS AVE	ORVIS RD
12/18/2004		Property Only	Property Only	ANGLE	MET	Dnylighi	ADAMS ST	MASS AVE LAKE STREET
12/25/200			PROPERTY	REARENO	DRY	DARK(ROAD LIT)	MASSACHUSETTS AVE MASS AVE	MYSITC AVE
12/26/200			Injusy Accident	UNKNOWN	Unknown	. Unknown		370 MASS AV BR
12/26/200			Property Only	ELIDHA	DAY	Daysots	12 POND LN PR MASSACHUSETTS AVE	LAKE STREET
12/3/2001	4;00;00 PM	YRULMI	RUURY	REAREND	DRY	DAYLKIHT Dawn or Dusk	MASS AVE	war' 21
12)4/2001			Injusy Apoldent	ANGLE	DRY	Dayon or Dusk DAYLIGHT	MASSACHUSETTS AVE	CLEVELAND STREET
12/5/2001	8:00:00 AM	PROPERTY.	PROPERTY	UNKNOWN	· DRY	THOLYAG	MASSACHUSETTS AVE	THORNDIKE STREET
12/5/2001	9:00:00 AM	PROPERTY	PROPERTY	UNIONOWN	OTHER	DAYLIGHT	MASSACHUSETTS AVE	LAKE STREET
12/9/2001			PROPERTY	Not reported	Dny	Dark - Ighlad roadway	ORVIS ROAD	MASSACHUSETTS AVENUE
12/9/2000				ANGLE	DRY	DARKIROAD LIT)	MILL ST	MASS AVE
2/1/2001	5;00;00 PM		PROPERTY Hit and Run	REAREND	DRY	Dan (Rood LK)	MASS AVE	WATTER ST
2/12/2001			PROPERTY	ANOLE	ORY	DAYLIGHT	MASS AVE	PALMERST
2/14/2001	,	PROPERTY	PHOPERTY	ANGLE	DRY	DAYLIGHT	MASS AVE	GLEVELAND ST
2/15/200			INJURY	REARENO	DRY	DAYLIGHT	MYSTIC AVE	MASS AVE
2/17/2000 2/2/2000	,		Property Chry	REAREND	DRY	Onylight	FRANKLIN ST	MASS AVE RT 15
2/2/2000			Property Only	REAREND	DRY	Daylight	MASS AVE	LAKE ST
2/21/200		.,.,.	PROPERTY	ANGLE	DRY	DAYLIGHT .	mass ave Mass av	PLEASANT ST RT 60
3/22/200			PROPERTY	ANGLE	ORY	DAYLIGHT	MASS AV MYSTIC ST	MASS AVE
5/52/300			PHOPERTY	ANGLE	YAQ	BAYLIGHT Owners	MASS AVE	PLEASANT ST
2/23/200			injury Accident	ANGLE	DRY	Daylight Dark(Road Lit)	BATES RD	MASSAV
2/25/200			Injury Accident	REAREND	DUA	DAYGRA	MASSACHUSETTS AVE	PLEASANT ST RTES
7/28/200			PROPERTY	REAREND REAREND	DRY	Daylight	MASS AVE	MIL ST
2/29/200			Property Only	ANGLE	DRY	DAYLIGHT	MASSAVE	COURT ST
2/3/2001			PROPERTY INJURY	REAREND	DAY	DARKIRDAD LIT	MASS AVE	SWAN PLACE
2/3/2001	7:00:00 Fo	· MUUM (

The second of th

				ANGLE	DRY	Dawn or Dunk	MASS AVE	PLEASANT ST
2/4/2000	4:00:00 PM	Property Only	Property Only	ANGLE	DRY	Down or Dusk	LAKE ST	MASS AVE
2/5/2000	MA 00:00:6	Property Only	Property Only	ANGLE	• • • • • • • • • • • • • • • • • • • •	DAYUGHT	MASSACHUSETTS AVE	LAKEST
2/7/2001	MA 00:00:5	PROPERTY	PROPERTY PROPERTY	REAREND	KGE	DARK(ROAD LIT)	PALMER ST	MASS AVE
2/1/2001	9:00:00 PM	PROPERTY	Property Only	ANGLE	DRY	Daylight	MASSAV	MILST
3/13/2000	2:00:00 AM 5:00:00 PM	Property Only	Injury Accident	ANGLE	WET	Down or Dusk	ACADEMYT	MASS AVE
3/16/2000	9:00:00 PM	Injury Accident Property Only	Property Only	ANGLE	DRY	Daylight	WASSACHUSETTS AVE	OXFORD ST WINAN TERR
3/18/2000	9:00:00 AM	Property Only	Property Only	ANGLE	thinown	Unknown	MASS AVE	MYSTIC ST
3/2/2000	2:00:00 PM	Property Only	Property Only	REAREND	DRY	Doylight	MASS AVE ALEWIFE BROOK PKW	MASSAV
3/21/2000	8:00:00 PM	Property Only	Property Only	ANGLE	WET	Dark(Road Lit)	MASS AVE	BAYES RD
3/23/2001	TO:00:00 AM	PROPERTY	PROPERTY	UNKNOWN	DRY	DAYLJBHT		MASSACHUSETTS AVENUE RIS ZA W
3/25/2007	11:00:00 AM	Non-lated injury	Non-latel injury	Reprond	Dry	Dark - lighted rosd-ray	ALEWIFE BROOK PARKWAY RIGHT	FRANKLIN ST
3/30/2001	8:00:00 PM	PROPERTY	PROPERTY	ANOLE	WET	DARK(ROAD LIT)	MASS AVE	WATER STREET
3/5/2002	#40:00:43#		Property damage only (none in)	Anglo	Diy	Daylight	MASSACHUSETTS AVENUE	MASSAVE
3/5/2002	11:00:00 AM	Property Only	Property Only	ANGLE	DBA .	Dwyfight	ADAMS ST MASS AVE	PLEASANT ST
3/6/2001	10:00:00 PM	PROPERTY	PROPERTY	REAREND	SNOW	DARK(ROAD LIT)		GENTRAL STREET
4/1/2002	8:30:00 AVA		Property demage only (none tri)	Angie	Wef	Daylight	MASSACHUSETTS AVENUE	MASSAVE
V11/2001	9:00:00 AM	PROPERTY	PROPERTY	UNKNOWN	DRY	DAYLIGHT	MILL ST MASSACHUSETTS AVEHUE	CLEVELAND STREET
471/2002	9:00:00 AM		Property darrings only (none in)	Angle	₽ıy	Daylight	MASSACHUSETTS AVERUE	WYMAN TERR
Ø12/2001	8:00:00 PM	PROPERTY	PROPERTY	angle	MEI	DARK(ROAD LIT)	MASS AVE	TE NOT JIM
N.15/2001	8:00:00 PM	HUURY	INJURY	REAREND	MET	DARKIROAD (JT)	JASON ST	MASS AVE
4/13/2001	6:00:00 PM	YAULM	INJURY	ANGLE	DRY	THOUTAG	MASS AVE	ACADEMY ST
A/16/2001	12:00:00 PM	PROPERTY	PROPERTY	ANGLE	ORY		LAFAYETTE ST	MASS AVE
4/25/2000	MA 00:00:8	Property Only	Property Only	ANGLE	MEL	Dayligh)	MASS AVE	CHANDLER
4/26/2001	7:00:00 PM	PROPERTY	PROPERTY	ANGLE	DRY	DAYLIGHT	MASS AVE	MILL ST
4/3/2001	9:00:00 AM	PROPERTY	PROPERTY	UNKNOWN		Down or Dunk	MASS AV	POND AV
4/4/2000	5;00;00 PM	Property Only	Property Only	REAREND	WET	Daylight	MASS AVE	SWAN PL
4/8/2000	NA, 00:00:0	Injury Accident	injusy Accident	ANGLE	•	Dayson Dayson	MASSACHUSETTS AVENUE	AMSDEN STREET/MAGNOLIA STREET
6/8/2002	2:10:00 AM	Hon-Inial Injury	Non-fotal Injury	Angle	Dry	Dayfight	GENTRAL ST	MASS AV
5/1/2000	12;00:00 AM	Property Only	Property Only	ANGLE	DAY	Daylight	CENTRAL ST	MASS AVE
5/1/2000	7:00:00 AM	Property Only	Property Only	ANGLE	DRY	DAYLIGHT	MASSACHUSETTS AVE	EGERTON AD
5/1/2001	7:00:00 AM	PROPERTY	PROPERTY	ANGLE	DAY	DAYUGHT	MASS AVE	ACADEMYST
5/14/2001	7:00:00 PM	PROPERTY	PROPERTY	REAREND	DRY	Devisit	MASS AVE	WINDSOR
5/15/2000	9:00:00 AM	Property Only	Property Only	UNKNOWN	DRY	THOUSEAG	COURT	MASSAVE
5/18/2/001	12:00:00 PM	PROPERTY	PROPERTY	ANGLE	4	Doylight	MASSACHUSETTS AVENUE	MILL STREET
\$/20/2002	12:50:00 PM	Non-tetal injury	More-Inted injury	Angle .	D ₁ y DAY	Daylight	MASS AVE	PLEASANT ST
5/21/2000	2:00:00 PM	Property Only	Property Only	ANGLE	MEI	DAYUGHT	ORVIS RD	MASS AVE
5/22/2001	MA 00:00:8	MUNITY	MUURY	MOLE	Dry	Daylight	CLEVELAND STREET	MASSACHUSETTS AVENUE
6/23/2002	MA 00:00:1	Property demage only (none in	Property derrega only (none in	Not reported	Dry	Daylight	MASSACHUSETTS AVENUE	MALTON STREET
5/22/2002	7:45:00 AM	Non-fotal injury	Non-total injury	Single vehicle croxh	Dry	Dark - Eghted madwey	MASSACHUSETTS AVENUE	WYMAN STREET
5/26/2002	6;10;00 AM	Non-letal injury	Non-lotal injury	Angle ANGLE	DRY	DAYLIGHT	MASSAVE	RTE 16
5/31/2001	4;00;00 AM	PROPERTY	PROPERTY	REAREND	DHY	DAYUGHT	MYSTIC	MASS AVE
5/4/2001	3:00:00 PM	PROPERTY	PROPERTY	ANGLE	DBY	Daylighi	MASS AVE	PLEASANT ST
5/5/2000	3:00:00 PM	Property Only	Property Only	ANGLE	DRY	DAWN OR DUSK	MASS AVE	MILLST
5/5/2001	5:00;00 PM	PROPERTY	PROPERTY	REAREND	WET	DAYUGHT	MASS AVE	PLEASANT
5/5/2001	MA 60;00;8	INJURY	PROPERTY	ANGLE	OBY	DAYLIGHT	MASS AVE	PALMER ST
6/14/2001	7:00:00 PM	PROPERTY	INJURY	REAREND	DRY	THOLIPAG	MASS AVE	RTE 60
6/15/2001	12:00:00 PM	MUURY	INJURY	ANGLE	WET	DAWN OR DUSK	MASS AVE	LAKEST
6/17/2001	7,00:00 PM	INJURY	PROPERTY	ANGLE	DRY	DAYUGHT	MASSAVE	WATER ST
6/18/2001	1,00,00 PM	PROPERTY	PROPERTY	ANOLE	DRY	THOUTER	MASS AVE	CLEVELAND ST
6/2/2001	4:00:00 PM		Injury Accident	REAREND	DRY	Dark(Road UI)	MASS AVE	PLEASANT ST FITE 6
6/3/3/5000	10:00:00 PM	Myury Accident	PAULINI	ANOLE	WET	DAYLIGHT	MASS AVE	WINTER ST
5/24/2001	8:00:00 PM	INJURY	Property Only	REASEND	DRY	Deylight	MASS AVE	PLEASANT ST
6/26/2000		Property Only	Property Only	ANGLE	DAY	Daylight	MASS AVE	MILL ST
6/30/2000		Property Only SNAVRY	Manak	REAREND	YRO	THOLIYAG	MASS AVE	FRANKUN ST JASON STREETMILL STREET
6/30/2001	10:15:00 AM	Non-latel injury	Non-land Injury	Angle	Wet	Daylight	MASSACHUSETTS AVENUE	ADAMS ST
6/5/2002 8/6/2001	12:00:00 PM	PROPERTY	PROPERTY	ANG).E	DRY	DAYUGHT	325 MASS AVE	ORVIS ROAD/ORAFTON STREET
5/0/2007	1:15:00 AM	Not Reported	Not Reported	Angle	Wel	Oxylighi	MASSACHUSETTS AVENUE	MASSAVE
6/7/2000	10:00:00 AM	Irony Accident	Injury Accident	REAREND	wer	Onlylichy	ACADEMY ST MASSACHUSETTS AVENUE	LAKE STREET
5/7/2002		Non-fatel Injury	Hon-falst injury	Angle	Wet	Daylight	MASSACHOSETTS AVENUE MASS AVE	EGERTON RD
7/11/2001		INJURY	BY BUFFY	REAREND	DRY	DAYLIGHT	MASS AVE	MILL ST
7/13/2001		PROPERTY	PROPERTY	ANGLE	DRY	THEKLYAG THEKLYAG	MASS AVE	MILL ST
7/16/200		PARITY	YRULNI	ANOLE	DRY	DAYLOHT	MASS AVE	MYSTIC AVE
7/16/2001		PROPERTY	PROPERTY	UNKNOWN	DRY	DAYLON	MASS AVE	MARATHON ST
7/18/200		PROPERTY	PROPERTY	ANOLE	DRY	Dwight	MASS AVE	ATE 60
7/19/200		Injury Accident	Injury Accident	REAREND	DAY DAY	DAYLAGAT	MASS AVE	MILL ST
7/2/2001		PROPERTY	PROPERTY	UNKNOWN	DAY .	Doysghi	MASS AY	PLEASANT ST
7/20/200	5:60:00 AV	Property Only	Property Only	ANGLE	Dry	Dayligh:	MASSACHUSETTS AVENUE	JASON STREET
7/20/200		Non-fored Inversy	Horafistal injury	Angle ANGLE	DRY	DAYLIGHT	EGERTON RD	MASS AVE
7/23/200	1 7:00:00 PM	PROPERTY	PROPERTY	REAREND	DAY	DAYLKIHT	PLEASANT ST	MASS AVE
7/25/200		PROPERTY	PROPERTY	REAREND	WET	Daysont	FOREST ST	MASS AVE
7/20/200		Property Only	Property Only	ANGLE	DRY	DAYLIGHT	119 MASS AVE	CHURCH
7/27/200		илля	HUURY	REAREND	DBY	Daylight	MASS AVE	PLEASANT ST
7/29/200		Supportly Only	Property Only	REAREND	WET	Deytok	MASS AVE	WYMAN ST
7/31/200		Property Only	Property Only	RNKHOMH	WET	Daylight	MASS AVE	ORVIS RD
7/7/2000		trjusy Assident	Injury Accident	ANGLE	DRY	Doylight	BALES RD	MASS AVE
7/8/200		Injury Academi	irjury Accident PROPERTY	UNKNOWN		DAYLIGHT	mass ave	វប្រកាននា
7/9/200		PROPERTY	Non-Intel Injury	Sideswipe, opposite describe	Dry	Daylighi	MASSACHUSETTS AVENUE	WINTER STREET
b/1/200		Non-tetal injury		Remend	Diy	Dark - Righted roadway	MYSTIC STREET	MASSACHUSETTS AVENUE
N1/200		Property duringe only (none in	Property Only	ANGLE	DRY	Deylight	MASSACHUSETTS AVE	TUFTS ST
\$40500		Property Only	INJURY	REAREND	, DAY	(TU GAORJYRAG	MASS AVE	ATE 16
6/16/200	,	INJURY Property Only	Property Only	ANGLE	DRY	Dayigh	MASS AVE	WATER ST
a/15/200			Injury Accident	DNKNOWN	DRY	Daylight	MASS AVE	RAILPOAD MASS AVE
8/22/200		Injury Acrident Property Only	Property Only	REAREND	DRY	Daylight	BATES RD	******
\$/22/20X			Hit and Run	REAREND	DRY	Dayloghi	MASS AVE	PLEASENT ST RTE 6
8/23/200			Injury Assistant	ANGLE	DRY	Day*sh2	CLEVELAND	MASS
6/31/201			INJURY	ANGLE	₩.	NWCWOKIN	HYSTIC ST	MASS AVE
B/7/200	·		injury Accident	UNKNOWN	DRY	: Daylight	CENTRALST	MASS AVE
9/1/200		Injury Accident	MANA ANGORA	UNKNOWN	DRY	THELIVAG	MASS AVE	E/8 156
9/1/200			Property Only	REARENO	DRY	Daylight	MASS AVE	PLEASANT MASS AVE
9/11/20			Property Only	UNKHOWN	DAY	Dark/Road Lift	LAKE 57	CLEVELAND ST
3/13/20			PROPERTY	UNKHOWH	WET	DAYLIGHT	MASS AVE	ELEVECANDS!
9/14/20			PROPERTY	ANGLE	PRO	DAYLIGHT	MASS AVE	MASS AVE
9/22/20			Property Only	ANOLE	DAA	Duyligh	MARATHON ST	MASS AVE MARION RD
9/25/20 9/25/20			PARAM	REAREND	WET	(TIJ GAORJYRAD	MASS AVE MASS AVE	LAKE ST
3/25/20 3/52/50			PAOPERTY	MOLE	DRY	DARKIROAD LTT)	CLEVELAND STREET	MASSACHUSETTS AVENUE
9/23/20			nj Proposty damnge only (none inj	Angle	Đγ	Onyfghi	OL TENTO SINCE	

DEZDOX 52500 AM Properly damage only from in Properly demage only from in Rosend Dry Daykon Massachusetts avenue various street 9/7/2001 5/05/00 PM PROPERTY PROPERTY, UNKNOWN DRY DANKRHOAD LTY CLEVLAND ST MASS AVE 9/8/2000 5/05/00 PM Injury Accident Injury Accident UNKNOWN DRY Daykon's GRAFTON ST MASS AVE

(7)(8)(9)) 1:3:00 A	17/16/2003 17 00/10/ PK				.	WY DOUGH TOWARDS	_			30000 0.5000FH	Na West-9 two-sea		100 OCOURT CO02/8/3					10.8/2007 2:35:00 AH	Mr. 05:15:0 2000:112			3232002 34530 AM		4110/2007 B30/00 AM		HY 30100'01 2002117			_	SANSANS CORDINA		_	8/20/2001 2:00:00 Put		6/20/2001 10:00:00 Au			3/25/2001 4:00:00 PM	3/2/2001 2:00:00 PM		_	~	rie 00:003 0000305
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	Angle	Hope Co.	Anglo	Alson	Nei toported	Single webicle crash	Reprond	Rear-and	Reartend	Not reported	Respendent	Regrend	Head-no	Single wahlele crosh	Single vehicle crash	Sideswipe, same direction	Mary manufact	Not repented	Angle	Designown	Slagio vahicla crash	Single walking crass	Argio	Regrend	Spe-see	State do reas	Sideswipe, same direction	Angle	DRIGHOWN	*AHG1.E	WHICHE	ANDLE	NAGROZE	ANGLE	WGLE	MANDADANG	DEARENS	REMREND	THE	ANGLE	UNGNOWN	- REAGENU	REAREND
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	Anan	Наде-эл	angle	Karden	Ansia	Single yehlde crost	Represed	Resi-dess	Annia Annia	Not reported	Restrand	Rasr-and	Head-an	Single webicts coasts	Single vehicle crash	Sidesyope, sente cylochon	Noi reported	Net reported	Action	Linknown	Single vehicle crath	Single vehicle crash	Angla	Rear-end	Realvend	Rasiriornal	Siderados, state direction	angla	Regivend	TRUCK	ANCHE	WCLE	NACANARI	ANGLE	ANGLE	HANDWAR	CNBRAGA	CNAMPAN	FIGUR	ANGLE	PRICKOWN	ADDLE OF	REAGEND
	Dey	Snow	14.41	West.	8 2	2 5	D _Y	Si n	Ş (Not reported	, Van	? 5						Sans must stat, oil, prevel	5 5	Q.	Doy	S.	D 5	Ş	8						DRY					DAY							ž ž
	Dayophi	Dawn	Daylighi	Caris - Eghilad readway	Onylight	Ostobe	Daydgh	Dayagai	Daylight	Davisor	Del carried	Carlogo	Daylegha	Dark - Eghtad roadway	DaySgM	Dade - lighted roadway		od Daylight	Danies of the control	Dayloght	Dayligh	Daylegez	Daylish:	Dayaghi	Daylight	Dayoeti Dayoeti	Daylogha	Daylight	Dayson	DARKIROAD LITT	DAYLIGHT	DYDLIKYO	PARONORIA	DAYLIGAT	DAYLOHI	DAYLYGHT	LUT GYÖELNBYG	CAYLIGHT	DANKSHT DARKHAND LII	SHOTAYO	DAWK OR DUSK	DAYLIGHT	Derfolikand Little
	Catal	Sportes			Clear	Class	Çisar	CloudyRain	Class	Clor	No Shouthed					CloudyRain	Ciat.	Chapi	Char	ClassCoss	Class	Clear	Char	Class	Class	Clear	Close	Clar	Class	Cleve	CLEAR	CLEAR	234S0H	CLEAR.	C. C. C.	CLEAR	CLOUDY	NOSPEC	CLEAR	CLEAR	CLOUDY	creve	PASK.
	And supplied to the			787 MASS AV	271 MASS AVE	ALL MASS AV	475 MASS AVE	ANY SSYM! NO	DAY SSVIN YEZ	IAY SSYM SAT	730 MASS AV	152 NASS AV	AND SOUTH AND	MA SSAM DE	700 NASS AV	AY SSYKS11	212 37Y2 212	SS4 MASS AVE	ZYA SZAWI SĄC	AV SSVACS EX	THE MASS AVE	40 EUSS AVE	SAY SSYM 562	ANY SEPTIMESS AND	82 MASS AVE	BSQ WASSAVE	304 55 M 50	SAV SSYN EZ	BIB MASS AVE	715 HASS AVE	SAY SSYM GE	SAY SSYN OF	220 WASS AVE	2AV SSW1584	SAV SSVA GAS	SAV SSVIT ROS	SAY SSYK 25!	192 WASS AV	655 KUSS AVE	AAV SSWILGZ	321 MASS AVE	485 WASS AVE	BAY SSWY EZ
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Safety Data from the Town of Arlington

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NOST TYPE OR PRINT

COMMONWEALTH OF MASSACHUSETTS POLICE REPORT

TAME OF POLICE DEPT. SUBMITTING REPORT
ertso.AM, Notsoa
P.O. BOX 199100
.V.M.A : JIAM
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Vanasse Hangen Brustlin, Inc.

Critical Lane Volume Analysis

TRANSPORTATION RESEARCH

CIRCULAR

Transportation Research Board, National Academy of Sciences, 2101 Constitution Avenue, Washington, D.C. 20418

INTERIM MATERIALS ON HIGHWAY CAPACITY

modes

- 1 highway transportation
- 2 public transit
- 5 other

subject areas

- 12 planning
- 21 facilities design
- 54 operations and traffic control
- 55 traffic flow, capacity, and measurements

Critical Movement Analysis

-19

(Example 1)

Note: "(R)" denotes a recalculation.

Step 1(R). Identify Lane Geometry. Left turn lanes are added on Approaches 3 and 4.

Step 2(R). Identify Volumes. Volumes, in vph are shown on the form.

Step $\Im(R)$. Identify Phasing. The existing two phase signal will be analyzed.

Step 4(R). Left Turn Check. Step 4(R) is identical to the preceding Step 5.

Step 5(R). Assign Lane Volumes. Left turns are assigned to left turn lanes and through plus right turn volumes are distributed equally to the remaining lanes.

Step 6(R). Critical Volumes. Critical volumes for phase A1A2 on Approaches 1 and 2 are 795 + 40 LT or 455 + 50 LT. Use 835. Critical volumes for phase A3A4 on Approaches 3 and 4 are 165 + 120 LT or 265 + 90 LT. Use 355.

Step 7(R). Sum of Critical Volumes. The sum of the critical volumes is (835 + 355) or 1190 vph.

Table 6. Level of Service Ranges

***************************************	PLANNING A	Applica	tions (in v	ph)
Level	, V	la ximum	Sum of Cri	tical Volumes
of Service	ı	Two hase	Three Phase	Four or more Phases
A		900	855	825
В		1050	1000	965
(c)		1200	1140	1100
0		1350	1275	1225
E	,	1500	1425	1375
. F	-		not appli	cable

OPERATIONS AND DESIGN Applications (in pch). (deleted)

Step 8(R). Intersection Level of Service. Using Table 6, the value of 1190 vph falls within the range of 1051 to 1200, or Level of Service C for two phase operation.

Step 9(R). Recalculate. No recalculation is necessary as it is demonstrated that left turn lanes alter the intersection Level of Service D to C.

Table 3. PCE Values: Left Turn Effects -

Left Turns Allowed from L	eft-Through Lanes ^a				
1. No Turn Phase	Opposing Volume, in vph: I left turn equals:	0-299 1.0 PCE	300-599 2.0 PCE	600-999 4.0 PCE	1000 + 6.0 PCE
2. With Turn Phase	1 left turn equals 1.2 PCE	,			
:Left Turns Allowed from L	eft Turn Bays Only ^b			`,	
3. No Turn Phase	Opposing Volume, in vph: 1 left turn equals:	0-299 1.0 PCE	300-599 2.0 PCE	600-999 4.0 PCE	1000 + 6.0 PCE
4. With Turn Phase	1 left turn equals 1.05 PCE	н			

^aPCE Values are used in Step 5, PLANNING applications, to develop a distribution of volumes among several traffic lanes. PCE Values are also used in Step 7, OPERATIONS AND DESIGN applications, to convert left turn volumes to passenger car volumes prior to adding them to through and right turn volumes, in pch.

bPCE Values are used in Step 7, OPERATIONS AND DESIGN applications, to convert left turn volumes (operating from a turn bay) to passenger car volumes, in pch.

Source: W. R. Reilly (NCHRP Project 3-28), based on a synthesis of various data, including Ref. (5).



Project: MASS AVE

Project # 09145

Location: ARLINGTON

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Calculated by: SLL

Date: 3/18/05

Checked by:

Date:

TITLE CRITICAL LAWE BY PHASE

MASS AVE AT PLEASANT STREET - EXISTING VOLS

4 PHASE SIGNAL

VOIS From LOUIS BETOUT Group (FOS) ACCIDETUDE TEACUS BOETATION ASSESSMENT

WEFKDAY HORNING

EXISTING

211 163 798 lane llane 2 lanes 1 lane

163+580+211+ 399

1353

WEEKDAY EVENING

540_ 173 869 214 ZIAnes Ilane llane 214 + 540 + 173 + 435

1362

PROPOSED - SIGNAL OPBRADE & COORDINATION



Project: MASS AVE

Project # 09145

Location: ARCINGTON

Sheet IA of GA

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Date: 4/19/05

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Date:

TITLE CRITICAL LANE BY DHASE

MASS AVE AT PLEASANT STREET - FUTURE VOLUMES (RESTOR 123 (193) 1 133 (193) 1 10 62 1 4 10 MASS AVE (960) 856++ (139) 126 7 6 6 6

11. growth - 10 years

WEEKDAY MOENING

EXISTING

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Tiane Tiane Tiane

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[1495]

WEEKDAY EVENING



Project: MASS AVE

Project # 09145

Location: ARCINGTON

Sheet Z of G

Calculated by: 'SLL

3/18/05 Date:

Checked by:

Date:

TITLE CRITICAL LAWE BY PHASE

MASS AVE AT MEDFORD STREET _EXISTING VOLS

2 PHASE SIBNAL + PEDS

AM (PM)

Vols from Louis Berger Group (F.95) ARLINGTON TRANSPORTATION ASSESSMENT

WEEKDAY MORNING

EXISTING

226 11ane Zlanes

052 226

878

WEEKDAY EVENING

197 1272

636 18331

PEOPOSED - SINGLE LANE

Morning

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Evening 0.59 A



Project: MASS AVE

Location: ARLINGTON

Calculated by: SLL

Checked by:

Title

Project # 09145

Sheet 2A of 6A

Date: 4/19/05

Date:

MASS AVE AT MEDFORD STREET - FUTURE VOLUMES

MEDPARO ST

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MASS AVE

(218) 250 J

I'l growth → 10 yeas AM (PM)

WEEKDAY MORNING

EXISTING CONDITIONS

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250+ 720

19701

WEEKDAY EVENING

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218 + 703

921



Project: MASS AVE

Project # 09145

Location: ARLIUGTON

Sheet 3 of 6

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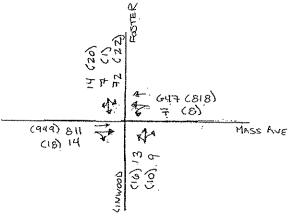
Date: 3/18/05

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Date:

TITLE CRIMICAL LANG BY PHASE

MASS AVE AT LINWOOD ST/FOSTER STREET - EXISTING VOLS



ZPHASE SIGNAL

± 1 1 1

from Jan 2002 Louis Berger Group Study MASS AVE GREEDOR STUDY AM (PM)

EXISTING

WEEKDAY MORNING

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825 & & q_3 \\
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WEEKDAY EVENING

44

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484 + 44

PROPOSED - SINGLÈ LANE

WEEKDAY MORNING 825 Hare Have

825 + 93

1918

LOSA .71

WEEKDAY EVENING

967 44 110re 110re

967+44

[1011]

LOSA .74



Project: MASS AVE

Location: ARCINGTON

Calculated by: SLL

Checked by:

Title

Project # 09145

Sheet 3A of GA

Date: 4/19/05

Date:

MASS AVE AT LINWIGOD STREET / FOSTAR STREET - FUTURE VOCUMES

11. growth - 10 years AM(PH)

WEEKDAY MORNING

EXISTING CONDITIONS

911. 103

21ans 11ans 450 + 103

[556]

WEEKDAY EVENING

1068 47 Ziano Tiane

534 + 47

581

PROPOSED CONDITIONS - SINGLE LANE ON MASS AVE

11 103 1 lane 1 lane

911 + 103

1014,

1068 47 Ilane Ilane

1115



Project: MASS AVE

Project # 09145

Location: ARLINGTON

Sheet 4 of 6

Calculated by: SLL

Date: 3/15/05

Checked by:

Date:

TITLE CRITICAL LAWE BY PHASE

MASS AVE AT LAKE STREET - EXISTING VOLS

3 PHASE SIGNAL + PEDS

ASSUME ADVANCE. IS 10 SEC -> 12.5% of CYCLE LENGTH

Volumes from "The Louis Berger Group, Inc" Study JAN 2002 HASSAUE ORRIDOR STUDY , Inc" STUDY

EXISTING

WEEKDAY EVENING

1 454 (678-224)

509 2 1000 21000

434 + 22 4 + 454

TEAFFIC SIGNAL UPGRADE & CODEDINATION

WEEKDAY EVENING

1 1 1

224 800 509

1100 509

1193



Project:

Project #

Location:

Sheet 4A of GA

Calculated by:

Date:

Checked by:

Date:

Title

MASS AVE AT LAKE STREET - FUTURE VOLUMES

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3 PHASE SIGNAL

97/-15

ASSUME ADVANCE IS 10 SEC = 12.5% OF CYCLE LENGTH

1% growth - 10 years

WEEKDAY MORNING

EXISTING CONDITIONS

1 V

594* 270 \frac{123Z}{2100}

459 + 270 + 616

\[\begin{array}{c} \begin{array}{c} \limits \\ \l

MERDAY EVENING

1 - - -494* 247 + 502

DEOPOSED CONDITIONS

270 1232 594 11ane 21ans 11ans 270 - 616 + 594 1480 247 864 629 Time Zianes Tiane 247+442+629 Project: MASS AVE

Project # 09145

Location: APLINGTON

Sheet 5 of 6

Calculated by: SLL

Date: 3/18/05

Checked by:

Date:

TITLE CRITICAL LANE BY PHASE

MASS AVENUE AT THORNDIKE STREET - EXISTING VOLS



Project:

Project #

Location:

Sheet SA of GA

Calculated by:

Date:

Checked by:

Date:

Title

MASS AVENUE AT THORNDIKE STREET - FUTURE VOLUMES

il growth - 10 years

WEEKDAY MOENING

EXISTING CONDITIONS

1
959
2 Tane Trans

480 + 46-1

WEEKDAY EVENING

4 935 21000 31 11000 468 + 46

1005

935 46 1100e 1100e 935 + 46



Project: MASS AVE

Project # 09145

Location: ARLINGTON

Sheet 🕜 of G

Calculated by: SLL

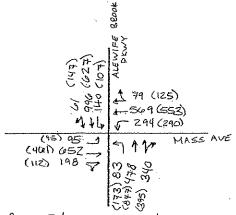
Date: 3/18/05

Checked by:

Date:

TITLE CEMCAL LANE ANALYSIS BY PHASE

Beack PARKWAY - EXISTING VOLS AVE AT ALFWIFE



4 PHASE SIGNAL

Vols from July 2004 VAI study AM (PH) XX (XX)

WEEKDAY MOENING

425

>	6	4	6
85 <u>0</u>	294	1057	146
ZIANCO	1 lane	zlanes	Hane

294



Project: MASS AVE

Project # 09145

Location: Aecinaton

Sheet GA of GA

Calculated by: S化

Date: 4/19/05

Checked by:

Date:

Title

MASS AVENUE AT ALEWIFF BROOV PARKWAY - FUTURE VOLUMES

(8) 333

+ 0 5 3

4 87 (138)

4 629 (611)

4 4 5 325 (320)

(105) 105 3 5 4 MASSAVE
(509) 720 7

(124) 219 7 678

11. growth - 10 years AM(PM)

WEEKDAY MORNING 4- F 1 4 716 325 1167 158 ZTanes Trane 21ans Trane 358 + 325 + 584 + 155

WEEKDAY EVENING

4 9 1 97

749 320 1372 191

Zime Tione Zione Tione

375 + 320+ 680 + 191



Project:

Project #

Location:

Sheet 7 of

Calculated by:

Date:

Checked by:

Date:

Title

MACS AVE AT FRANKLIN STREET - EXISTING VOLUMES

3 PHASE SIGNAL PEDS

BUILD 2003 VOLUME FROM 1998
"PROPOSED APPREMENTS -MAS ANT" STUDY

WEEKDAY MORNING

EXISTING CONDITIONS

J - + /

991-156

Ziano + 298

872

LOS B

 $\frac{3}{231} + \frac{934}{2100} + 133$ 721 103 A

WEEKDAY EVENING



Project:

Project #

Location:

Sheet 8 of

Calculated by:

Date:

Checked by:

Date:

Title

MASS AVE AT FRANKLIN STREET - FUTURE VOLUMES

(255) 172 J (900) 1095 J

11. growth - 10 years

FUTURE COUDITIONS
WEEKDAY HORNING.

172 + 1095-172 L
21ano + 329

LOS B

WEEKDAY FUFNING

 $\frac{1}{255} + \frac{1063}{2100} + 147$ 929 108 B

Existing AWT ear Tiour	<i>▶</i>	>	`\	*	4	4	4	†	<i>P</i>	1	ļ	4	
	leg _e s	X EDIES	Serre	WBES	Well	WBB :	TNBIC	NBR	NBR =	SBE	SBL	SBR	
Lane Configurations		ት ን	TOP HOLDEN	<u>alatan ma</u>	44			4			4>		
Ideal Grow (vphpl)	1900	\$1900 S	19003	1900	1900 S	1900	1900	1900 c	1900 -	1900	1900	1900	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	DER CHI SHERWARDE FOR SHERVE
Leading Detector (ft)		3.50		4 50 ₆	50		50	50.8		50	50.		
Trailing Detector (ft)	una su manuscribados	0	ese de carece estadore	0	O O	ereneren en e	0	0	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	0	0		
Furning Speed (mph)	15		1151911	8 A 15		Yes			Yes		PARTICIPANT	Yes	
Right Tum on Red			Yes	9274F3250		162 243		- 20 S			3 20		
Link Speed (mph)		3408			3504		SUEDWEIN.	2712	MARKAMAKATINA	religione i montre i mens	2728	BA SAGREY GERMANANIN HELANG	Section of the sectio
Link Distance (ft)		27766			79.6			61.6			62.0		
Volume (vph)	0	811	14	7	647	0	13	0	9	. 72	7	14	NAMES AND ADDRESS OF THE PARTY OF THE
Peak Hour Factor	0.92	0.92	0/92%	0.92	0.925	0.92	0.92	0.92	0.92	0.92	30.92	0.95	
Lane Group Flow (vph)	0	897	0	0	711	0	0	24	0	0 Pemis	101	0	
numatype				Perm	Marie 1		Perm	8		EGITTE.	4		
Protected Phases	i cure e e e e e e e e e e e e e e e e e e	2			6		6 VIII 10 A			- A			
Pernanted Phases		2		- 6 6	6		8	8	ing properties	4	4	37.99.88.67.52.00.00.00.00	Province Country of Street Country (Street Country)
Detector Phases Minimum Hattal (S)			*50454519	740	4.0		24.0	344 OS		4.0	4.0		
Minimum Split (s)		21.0		21.5	21.5	500 may 12-4000	21.5	21.5		21.0	21.0	responsible sections 200	
Total Split (S)	# 0 O	7550X	9 0 0	55.0	55.0	0.04	35:0	35.0	0.0	135.0°	#850¢		
Total Split (%)	0%	61%	0%	61%	61%	0%	39%	39%	0%	39%	39%	0%	
Maximum Green (s)		\$50.0		\$50.0×	50.0		295	295		30 0 3.0	30:0 3.0	ir diskort	
Yellow Time (s)	WHEN THE PROPERTY OF	3.0	ANDERE PROGRAM	3.0	3.0		3.5	3.5 2.0		3.0 3.0	3.0		
All-Red Time (s)		20		204.95						SER TOTAL		TOTAL STREET	CONTRACTOR PROPERTY.
Lead/Lag Lead-Lag-Optimize/	SELECTION SE												
Vehicle Extension (s)		3.0		3.0	3.0	E TORNES MANAGEMENT	3.0	3.0	of her had been an array.	3.0	3.0	ample out of the second second	namana mengangganak menghanggan Salah
Hecall Mode		None		None	None		Min	Min		Mine	e Min		
Walk Time (s)	ASSESSMENT NOT THE	5.0	ELLAN 13 Mr W. W.	5.0	5.0	unmound managed with Falls	5.0	5.0		5.0	5.0		
Flash Dont Walk (s)		311.0		14.0	110		310	111.0		110 0	211.00 0		
Pedestrian Calls (#/hr)	aranda estribilit	0	in although state of the second	0	0		0	0 878-489-58			12		
Orege Length 50th (this)		90			82 82			16			49	eranicopustora	STANDARD MANAGEMENT (CO.)
Queue Length 95th (ft) Internal Link Dist (ft)		30 384498						2632			2648		
50th Up Block Time (%)				AND SECONDARY	STATE OF THE PARTY	i i de la compania de	SESTIMATE AND SOCIOES	BADA MASARITAN	ACTOR OF PRODUCT	Chr. Marketin Co.		a landana version d'artere d'	maramata iki kala ki sang ki kala ki ki kala ki ki kala ki kal
95(6)Up Block Line (%)	342												
Tum Bay Length (ft)	NEWS BUTTLESCOPES	CONTRACTOR DE LA CONTRA	CERCON CONTRACTOR				nevered in the next ASS	en en moner, blevate en Meire			are established that		
50th Bay Block Time %									in sec				
95th Bay Block Time %	hovemestesidead	enter entertainment	and the second s	umareoverse		erene erene er						PASSED NAME	
Queuing/Penalty (veh)											oranienista Oranienista		
Intersection/Simulary.							200	100		agreem and			
Area Type	BD.												
Cycle Length: 90	THE THE PERSON THE SAIT OF	n negative same skip same same	enterer er er er			energy se			2006-003-002				
Activated Gycle Lengths 34 Natural Cycle: 45	6 45					STEELEND	in and the control of	Securit		A DESCRIPTION OF THE PARTY OF T	Control of the Contro	AEACH-STOCKES (CARLACE)	DATE CONTRACTOR STATE OF THE PROPERTY OF THE P
Natural Cycle: 45 Confiol Type: Actuated Ur		aien S											
DOLLION TARREST CO. OF	operul	. Since	er inde in in the	rentalitation (8	STATE STATE	eriziyessenik	mark to the second	/SELASTICAL	والمراود والمراود والمراود والمراود والمراود				
Splits and Phases: 3: M	assach	usetts A	venue &	Foster S	Street								
		***************************************			₩ 04								
— ≯ ø2		New 2015 200 P	(E. E. S. E.	Secolor			16-32 C						
	SERVICE CONTROL	water nastrice	organistical.	ACCRECATE STATES	T.A		ALCONOMIC	45,000					
₹ p6	5	3500 pg 340 40	44.500 AND 200						48.				

	<i>></i>		•	*	4	A.	4	†	1	1	ļ	4	
Movement	EBE	AEBJE	EBRS	WBE#	WBI	Were i	NBE	NEGE	NBR	SBL	SBI	%SBR	
Lane Configurations	<u> </u>	ት [›			414			↔		-or-more than a letter		erenerenenist	
Ideal Flow (volu)	17(0)	1710	1710	1710	~1710×	1710	1710		1710	1710	4.40	1710	
Total Lost time (s)		4.0			4.0	one nengative ethics	nanawasahanakanan	4.0	pioneroportagos:	0460W789080857	4.0	versamen eine	
Lané Util Cactor	2.62	0.95			0.95			100			0.98		
Frt		1.00	NA PARAMETERS	-	1.00	**************************************		0.94	102012612FFF		0.96		
Fit Protected		¢4:00s			1.00			1537			1582		
Satd. Flow (prot)	mériosoceanes.	3177	ura yyezhy baben		3184			1001			0.76		
FILEemitted		4000			3005			1293		CALCOLOGY, 1986	1250	AND SERVICE	SELPS SERVICES PROGRAMMENT
Satd. Flow (perm)	om salvetick	3177	JECHOSTI DANCAT	Parameter and the	647	2002000000000	254-55	1233	Z	1576°	34. Ja	44	
Volume (vph)	0	811	204		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	Substituting of the period of the property of the period o
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	U.92	0.52 6 G	0.32 0.14%	0.52 205504				3545 2	
Adje Flow (vph)	S A	897		0	711	0	0	24	0	0	101	O Separate and a	\$5.0 (09550) TENDOON (0000) TENDOON (0000)
Lane Group Flow (vph)	0	897	0	Pem			Rem !!	0.000		Pemi	2000	200	
Turn Type		2			6			8	KERKEN PARK		4	i promisi uzula A sezular	Secritario de Esparaciones de Caracterio de
Protected Phases										15 S47			
Permitted Phases Actuated Green, G (s)		15.8			15.8	Maritima (Alexandra)	SEE SEE SEE SEE SEE SEE SEE SEE	7.8	Contract to the contract of th	(Appeal of State of S	8.3	A dema transcription or a state of	man and a state of the state of
Effective Green; g (S)			********		10.00			9.9			9.3		
Actuated g/C Ratio		0.49	C) St. Sept.	SENSON STATE	0.49	Programme of the second second	March Market Street	0.27	- Contract - Contract	4 **** **	0.27		and the second of the second of the second of
Clearance Time (s)		1205 TO 18			5.0			555			5.0		
Vehicle Extension (s)		3.0		SELECTED AND STREET	3.0	TESTINE CONTRACTOR AND AND AND AND ADDRESS.	Late at Section \$1 and	3.0			3.0		
tane Gro Cap (vph)		1565			1480		100	359			341		
v/s Ratio Prot	SECTION SOLD	c0.28	MERCHANA CAN	Martin State of the State of th	A billion gampi kanga na manga na manga	CCALIFORNIA CONTRACTOR				of the annual or a belief followed the best of the	u anament restructure investi in	on removalment of the little	responsation de la company
vis Etatio Perm					0.24			0.02			c0.08		
v/c Ratio	rryanguarnogayu asuanay	0.57	ALE EVEN PROPERTY.		0.48		and a second second	0.07	NTHE PERSON NAMED IN COLUMN TO	ezerosztesáttália.	0.30	NEEDLESSEUR Z	
Uniform Delay, di		STI			- 57			9.23			9.8		
Progression Factor		1.00		and the later of t	1.00	www.messwessettetetete	naseussus/kuriens	1.00	na nara-makataka	92040255555	1.00	**************************************	
incremental Delays d2		0.5			0.2						10.3		
Delay (s)		6.6		varret de la marche de	6.0	EDWINSTER STATE OF THE STATE OF	30000000000000000000000000000000000000	9.3	SOME VALUE OF STREET	HI PERIOD	10.3		
Level of Service		≗.sA			ara Ar			9.3			10.3		
Approach Delay (s)		6.6	en e		6.0		erranistica.						
Appleach POS		$\pm aA$				ili Salawania	****			SPECIAL SELECTION OF THE PARTY			
intersection Summarys									0.00	1000			
HCM Average:Control Del	avi	200	6.6	West of the	ICM Lev	el of Serv	ice		A				
HCM Volume to Capacity		ALLE PATRICIA CESTA	0.47	and a change of an analysis of		and many or the null plantacides	NAME OF THE PERSON NAME OF THE PERSON	and the second	T-12400-0-11200-1244-1245	mensorations	reneral St		
Actuated Cycle Length (\$)			341			ist time (s			8.0			Herman	
Intersection Capacity Utiliz	zation		47.2%	1	CU Leve	of Service	Ce Secondos		A	residore disso	and the same of the		
c Canical Lane Group											CEON SCHOOL		

Bank Configurations Total Lost Total
Lane Configurations
Lane Configurations Total Lost Time (s) 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.
Total Lost Time (s)
Total Lost Time (s)
Trailing Detector (ft)
Trailing Detector (ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Projected Phases Projected P
Fight Turn on Red
Link Distance (ft)
Link Distance (it)
Volume (vph)
Volume (vpn)
Perm
Perm
Protected Phases 2 6 8 4 4
Detector Phases
Detector Phases 2
Minimum Split (s)
Minimum Split (s)
Total Split Split
Total Split (%) 0% 61% 0% 61% 0% 078 295 300 300 300 Westmann Green (S) 500 500 500 295 295 300 300 300 300 300 300 300 300 300 30
Meanmain Green (S) 30 30 3.0 3.5 3.5 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0
Yellow Time (s) 3.0 3.0 3.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0
Lead/Lag
Colored Lang (Optionize)
Vehicle Extension (s) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0
None
Walk Time (s) 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 <
Flash Done Walk She
Pedestrian Calls (#/hr) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Queue Length 95th (ft) 370 276 24 79 Internal End Distr(th) 3828 3424 2632 2648
Queue Length 95th (ft) 370 276 Internal Link Dist (ft) 3828 8424 2632 2648
Internal Eurk Dist (III)
50th Up Block Time (%)
9516-Up-Block Finner(56)
Turn Bay Length (ft) 50th Bay Block Time %
95th Bay Block Time %
Otieumo Penalty (veh).
Intersection Summary
Area Type Cycle Length: 90
Actuated Cycle: Cengin: 59.4 Natural Cycle: 65
Control Lype: Actuated: Uncoordinated:
MANAGEMENT AND
Splits and Phases: 3: Massachusetts Avenue & Foster Street
→ 24
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8
▼ .ø6

AM Peak Hour - one R	arie wier	337140				Α.		4		١.	l	1	
	. <i>•</i>	>	*	*		•	***			**	₩	•	
Movemente	EBL 6	XEBJE:	EBRIA	WBL	WBTS	WBR	NBI	NBIG	ŅBR	SBI	SBI	SBR	
Lane Configurations		₿.			4	er w programment de la company		₽ 1710∑	4240	3 74 A	4) 217402	1710	
ideal Flow (vphpl)	1710	The state of the s	1710	4710	4710	1710	1710	4.0			4.0		A STATE OF THE PROPERTY OF THE PARTY OF THE
Total Lost time (s)	ensimonen menerata	4.0	necessies en electric		4.0	SPECTOR SPECTOR		4.0 31 00 22			E TOOK		
Lage Util Factor		1.00			1.00 1.00			0.94	######################################		0.98	5797-90-10 (NECULA)	en antigographic descriptions and a
Frt	HORNE DE RECORDE DE LA COMP	1.00			1.00			70.07			0.96		
Fit Protected		100 1673			1676			1537		er and an area of	1582	Portugative serve	ES (DE) (PER UNION ACO) (POSCO)
Satd. Flow (prot)		100			1073 30.993			0.82			0.76		
Elt:Permitted Satd. Flow (perm)		1673	NAME OF STREET		1662	o de la composition della comp	eces was three on	1300	Patheness	CONTRACTOR CO.	1247		
	S. 100 100 100 100 100 100 100 100 100 10	1070 2009	52297133		647	0.0	13	. 0	977	% 72 +	7.	14	
Volume (vph) Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	on and commencer when a filter, concerns \$1.06.000.00
Adj. Flow (yph)	U.S.	20.02 20.02	1 1 1 5 T	8 2	703	45 8 O W	14	0.7	** 10 *	78	8.	. 215	
Lane Group Flow (vph)	0	897	0	0	711	0	0	24	0	0_	101	0	
Turo Type			(14)	Perm			Pemis			Perm	e e e		
Protected Phases		2	S. M. Salata C. A. Salata S	Total Designation of a	6	7000-22002-2770-200		8	annaisten timeta e br	mannesses de 1980 de	4	1240020421F820220	
Permitted Phases				6			8			A.			
Actuated Green, G (s)	AND SHEET SHEET SHEET	38.8			38.8		ningermanistrativi	9.4	THE SELECTION		9.9		
Effective Green, g (S)		39.8			39.8			310.9			0.19		
Actuated g/C Ratio		0.68	ros, www.wer.cleureners.htm	a-noonka am 741 bishii	0.68		20000000000000000000000000000000000000	0.19			0.13 30 ± 68		
Clearance Time (s)		5.0			5.03			3.0			3.0	SSLEEVEN SE	ZEROSTINOS INTERIORISTOS
Vehicle Extension (s)	5727277	3.0	esteron sociones	OF THE PARTY AND	3.0	HOREST SHOW	V92000000000000000000000000000000000000	3.0	orani ara	SIMPLE S	%% gq9		
Câne Gro Cap (vph)		1134			1127							er en	AND MADERA ASSESSMENT AND ASSESSMENT OF THE PARTY OF THE
v/s Ratio Prot	· mercurer constru	c0.54	erendinentin		0.43			002			60.08		
Vs Hatio Perm		0.79			0.63			0.10	Colored Sector	Sexual con	0.44	all viction and exercises.	and the second house when a second second
v/c Ratio		0.79 18866						98	70000		21.2	多油量	
Uniform Delay di Progression Factor		1.00		BS4660 HBGH	1.00	NATION OF STREET	AND SERVICE STREET	1.00	TO TO SECURE		1.00		a varantus barrakistus Celisionii ili cisaett
incrementa Delay, d2								0.2			4.3		
Delay (s)		10.4	7.55.6527/HS22P61342	promotory and the	6.5	y 24 9 3 3 2 4 7 7 4 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4		20.0	and the manager described in the	nerger at DOTANGE DE	22.5	entrik kantangan kantang	
Eevel of Service		В			A			11.5C			O.		
Approach Delay (s)	ia degli ilizia (n. 1949 + 194	10.4	TANK POPPOSIT		6.5		on market by the market by the party.	20.0			22.5	OSWESSA PERSON	
Approach LOS		В			A								
Intersection Sumpriary													
HCM-Average Control D	Have St.		0.6	1	ICM FeV	et ot Se	vice:		s A	0.00			
HCM Volume to Capacity	v ratio		0.71	SECTION SERVE	a) De Confession	\$ F. C. Sept. S. S. Sept. S.	A STATE OF THE PARTY				www.manaelfean	p⊶er/hound booking/	TOTAL MENSOR WHEN THE PARTY OF
Actuated Cycle Eenglist			587		Sum of Ic	isttime	SI 🐇 🖔		8.0				
Intersection Capacity Uti	lization		72.2%	Ī	CU Leve	of Serv	rice	Kentasahir dan terda	C	Sexual payers	MELICAL SECTION	energy and a	
Critical Lane Group											建加速发展 机		
The STATE AND STATE AND STATE OF THE WAY A LINEAR COLOURS OF THE STATE													

Existing PM Peak Hour	<u>,</u>				<u> </u>	Ą	4.	^	ρÞ	1/2	1	4	
		▶	*	₩			,		/		v Zenevinski	SERRE	
Lane: Group State Land	EBI S	EBE	EBR 7	WBE :	Section of the section of	WBR.	NBL 1	NEGE	NBR	(SDE)	esteren ∰	e-sonee-	SACRETURE SERVICE
Lane Configurations	77.000 PM	ሳ ጐ	end desertion	40000	ተ ት 3900 የ	1900-5	1900	1900	1900	1900	1900	4900	
Ideal/Elow (viplipl)	1900	A900a	1900	1900 4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0 **********	4.0	4.0 87527	7.0 250.00	250		50	50		
Leading Defector (ft)		50 0		0	0		0	0	Contraction of the second	0	0		and the second second
Trailing Detector (ft)			2 52 0 2 7	22 (S.)		9.5	1515		9.8	15%	-	9	
noming/Speed/(mph)			Yes		AND THE PROPERTY OF	Yes	28247761ANDERSON		Yes		normanii ka hore mwanz	Yes	energia participa de la composição de la c
Link Speed (mph)		e a a a a a a		77.71	2230.			30			30		
Link Distance (ft)	egister:	3408	MENCANDROPHEN N	D. C. SANDERS	3504	AND THE PROPERTY OF THE PARTY O		2712	and the base of the second	Arrandormockows	2728	namento balento positivo	
fravel nine (s)		2775			79.6			61.6			3529	20	
Volume (vph)	0	949	18	8	818	0	16	0	10	22	1 -0.92	20 110 92	
Peak Hour Factor	0.92	0.92	0.924	0.925	0.92	0.92	0.92	0.92	0.92.0	0	79.94 47	0	
Lane Group Flow (vph)	0	1052	0	0	898	0	0	28	u Serence	Pemil	74 / 74 / 14 / 14 / 14 / 14 / 14 / 14 / 14 /		
Tung Type				Perm			Perm	8		orenius.	######################################		THE CONTRACT OF STATE
Protected Phases		2	enter Substitute Co.	***************************************	6		ered stored						
Permitted Phases (1992)				6.1	6		8 8	8		4	12000000000000000000000000000000000000	Alvetiges mensember	STOPPOLE WAS THE CONTRACTOR OF THE PER
Detector Phases	nematoria establista del	2		6 4.0	6 40		2405	3.440.A		4.0	40		
Minimum taitial (St.		940		21.0	21.0		21.0	21.0	ARCUST SERVICES	21.0	21.0		
Minimum Split (s)	an Anna Carlotte	21.0 55.0	700	55.0	55.0	0.0	35.00	95.0	0.0	35:0	×35½	0.0	
Total Solit (S)	0%	61%	0%	61%	61%	0%	39%	39%	0%	39%	39%	0%	namen and a supplied to the control of the control
Total Split (%)	076	50.0		50.02	S 50.0		30.0	300		£30.0	300	4000	
Maximum Green (s) Yellow Time (s)		3.0		3.0	3.0	A THE SECTION ASSESSMENT	3.0	3.0		3.0	3.0	er en	nananina di Pangananana
All-Red Time (s)		3320		2.0	352.0		2.0	2.0	多數集	%20 8	2.0	Page 1	
Lead/Lag	GORDONIO ALION	Care diamento de antico	ANGESTIC THROUGH				e i maranama arabah da kabi da barah.	errosite General Trickel	turrate it turrest			THE PERSON	
Lead Lag Optimize		THE ST								3.0	3.0		
Vehicle Extension (s)	The land store in com-	3.0		3.0	3.0	orument National Call	3.0 Min	3.0 Min	and the same of th	3.0 Min	Min.		
Recall Mode		None		None:	Nones		5.0	5.0		5.0	5.0	Negligibilities of	BATTER CONTRACTOR
Walk Time (s)		5.0	erne kanin kaninin	5.0	5.0		5.U S-11-0	5.0		anico.	3440		
Flash Dont Walk(S)		41.0	2.5	110	310 0		0	0		0	0	abendali Mariana and and and and and and and and and	The U.S. Constitution of the second second second
Pedestrian Calls (#/hr)	NO CONTRACTOR AND CONTRACTOR			0						NS 65-56	4		
Queue Length 50th (th		80	and the same		84			19	COPPLY CAPTURES.	TOT TOTAL CONTRACT.	25	N	Visit Control
Queue Length 95th (ft)	er vances	00 200000			£194748			2632			2648		
internal Link Disk (ft)		2555466	MSS (1246)			THE SAME	Talking Company	Section of the Assessment of	(Martinesson			s, en anticore estende e l'estate	FESTER'S SET SECURIOR SECURIOR SE
50th Up Block Time (%) 95th Up Block Time (%)													
Tum Bay Length (ft)			G2572-Calvar st. Erzane	MAZARINISAN	CA) STREET, STREET, SHIP	MAIR CANAGES AND STREET			name at the Section Company	rammacoamherreichti		Composition	
50th Bay Block Time &					XXX								
95th Bay Block Time %	Considerations	Trickly or the section of the section of	MANAGEMAN	(A1) - 7) - (A			and the state of t	ranunci Tombhili (Albinia	especial and a second	eropeninger Proposition	nica recoveración	ALCON SERVICES	
Oueumg Penalty (veh)													
infersection Summativistic											44.00	F 16 16 18	2010
	BD	5 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1			75.00 10.00		0.20	2.00					
Area Type Cycle Length: 90				BEAR STREET	980m289842	DONES DE CONTRA DE C	ONAMESTANCE IN REP	an E-m (septiment special delibera		and the same of th	Philipping (1984 the Section	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
Actuated Cycle Lengths 2											建造品		
Natural Cycle: 45		er de la	Mark and a second of the secon	CHANGE CHANGE	INITER ST. NO. CO. CO.		-	e pel proposit/4 in our even sector	ngggggggggggggggg	part department state	and the second	KOCHCOOOSOW	
Control Type Actuated U	îcoordi	nated 🗱											SaxSVSEVAE AATTA
The transfer of the second transfer of the se	na randistantis				.								

Splits and Phases: 3: Massachusetts Avenue & Foster Street

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Existing PIVI Peak Hour												,	<u></u>
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Movements & Accessors	EBE?	EBI	LBR	WEE	WBB	WBR	NBER	LNIB#	ŅBB	SBL	SBL	SBH#	
Lane Configurations	-	↑ ↑			41>			4		www.mhomancaita	- 4>	nakadan makalik	
Ideat (Jow (vphpl)	1710	1710	1710.	1710		1710	710	1710	1710	1710	1710	1710	
Total Lost time (s)	100000000000000000000000000000000000000	4.0			4.0	h a war at 274457	neverthan dibutish	4.0	ormonium (SA)	okungsanananah esiste	4.0		
Lane Util Tactor		0.95			0.95			1.00			0.94		
Fri		1.00	variation makely is moved to the	and the second s	1.00	ementari veretaktises	neraciónsta	0.95	Machanalan Machanalan	000000000000000000000000000000000000000	0.94 50.98	DESIGNATION CONTRACTOR	
FIFPiolected		1.00			1.00			1541			1531		
Satd. Flow (prot)	nancental and a second	3176	nandarya andonesik	ZEVENESKE	3184 -0.94			1341			0.845		
FICPermitted		1.00			3003			1294		N-100	1320		
Satd. Flow (perm)	Service Service	3176 949			3003	and the	N-1616	7455	es in e	05/2 9 95	***** 1	220%	Charles of the Carlo
Volume (vph)		The second section of	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
	0.92	0.92 1032	0.92 383566	0.92 8858688	0.52 33003	0.02 2020	0.52 (1.70)	53577h		24		707 229	
Adj: Flow (vph) Lane Group Flow (vph)	0	1052	0	0	898	0	0	28	0	0	47	0	STEED SHARE STATES OF THE STAT
	E1/40/2565	1002 2005		Perm	70.00		Pěrm's	8,455,18		Perin			
Tum Type Protected Phases		2			6		en de la constru	**************************************	APPENDATE OF COLUMN	en der eine eine Geber der Geber Geber Geber der Geber Geber der Geber Geber Geber Geber Geber Geber Geber Geber	4	TV et inter alter entre	AND THE PERSON NAMED IN COLUMN TWO
Permitted Phases				6			3.84			4			
Actuated Green, G (s)		18.1		EEL GOOD CON	18.1	200000000000000000000000000000000000000	AND STREET, ST.	6.6	A PARTICIPATE OF THE PROPERTY		6.6		
Effective Greening (S)		9191			19:18			7.6		200	7.6		
Actuated g/C Ratio	Bernald Strawnson	0.55	Makeur de Bermon Albert et er	,	0.55			0.22	none on a successive	water and the common of the co	0.22	ann eastein an an a	
Clearance Time (s)		550			5.0			5.0			- 5 V		
Vehicle Extension (s)		3.0			3.0		Carra Para	3.0	2000 SASAN	22002470424/200	3.0	Department of the second	
Lane Grp Cap (vph)		1748			1653			283			289		
v/s Ratio Prot		c0,33	vanicul educition (VIIII)	unorakontakiloreera	ann bacharanann	TOTAL DE LA COMPANIONE	en e			02000046	c0.04		
v/s:Ratio Perm					0.30			0.02		MEENENG	0.16		
v/c Ratio	ORIGINAL SERVICE SERVI	0.60	WEEK OF THE PERSON OF THE PERS		0.54 5.0		3360XF893	3310.8	525125125	PARTEUN E	SATALOS		
Uniform Delay-d1		1.00			1.00			1.00	SERVETXO	(Marie 1997)	1.00	EDERECENT OF SHEET	
Progression Factor		1.00						05025			0.3		
incremental Delay, d2		5.8			5.4		CONTRACTOR OF THE PARTY OF THE P	11.0	AND	((Carrioration)) a	11.2	25(dra?)+em sey emery	Printed by March and Control Barbon 11, 1999 and the No.
Delay (s) Level of Service					X A			B	探問題		B.		
Approach Delay (s)		5.8		AND SERVICE	5.4	AMERICAN PROPERTY OF THE PARTY	CONTRACTOR AND A PARTY.	11.0	12.20.72.2.30.00	A STATE OF THE PARTY OF	11.2		and a supplied of the supplied of the
Approach LOS		. LA			Ā			· · · · · · · · · · · · · · · · · · ·			6 B		
No. of the second secon													
Intersection Summary 5:35					in Maria	el of Serv	composition of the		A.	107		1500000	
HCM Average Control Dela			0.48		in weren	C. C. CCIV	25060		NATIONAL PROPERTY.	Consideration of the constant	NATURAL PROPERTY.	TAIN STATE STATE OF STATE STATE	CONTRACTOR STATE STATE OF NO SECURIS
HCM Volume to Capacity ra Actuated Cycle Length (S)	111U		0.40 27.78		ina of to	ist time (s			8.0				
Intersection Capacity Utiliza	ation	TERESEAR I	42.4%			of Service			A	Control of the South of	Pr. Westernament Comp.	and and the second of the second	
o Calical Cane Group				64507						36.6			Salata Salat A
		Karterran	erster terster in the	sustrations/A	er-Lorenze et servi	anticities in a significant	terrosta a Managania	ATTACABLE PARTIES AND THE PART	- Caracan and an extension				

PM Peak Hour-one lan	e Mass	s Ave					·····						
	♪		*	•	←	*	4	†	1	b .	Å	4	
aneiGnoup	A BIS	WEBT Z	EBB %	WBlea	WBT :	WBR	NBL	NBT.	NBB.	SBL		SBR	
ane Configurations	35000	\$			4			4	a nicht vir bermanner (1995 ersel s	nantumenten en en electrica	4	onverente	TO A STATE OF THE PARTY OF THE P
deal Clow (vphol)	1900	1900-2	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Fotal Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
eading Detector (ft)		7 50 S		50%	48 50 k		5.50	355035		\$ 250	5 (20)		
Frailing Detector (ft)	Carried Marketine	0		0	0		0	0	Supertresident	0			
Ruming Speed (mph)	- 15		9	15		9.9		100.00			CLAND.	Yes	
Right Turn on Red		nielannika ratioaetiki 200	Yes	anner and the second	meirana menances	Yes	Problemania		Yes			ico Vitaliza	YOU THE STATE
ink Speed (mph)		90			30.4			30.5			2728	en caratra	
Link Distance (ft)	MARKET COMPANY COMPANY CONTROL	3408	ana manda si Pango da	esergeren e	3504			2712			26203		
travel(Time (s)		0.5			24910		16	0	10	22	1	20	er e
Volume (vph)	0	949	18	8	818	0 56665	767 65 FE	10.925	chroze.	0.92	092	0.92	
Peak Hour Factor 552 55	0.92	0.92	0.92 0	0.92 0	898	0	0	28	0	0	47	0	ert. Der Einigke menke, rett seit seiter 31. e. K. ve-
Lane Group Flow (vph)	O CONCESSORIA	1052	U Farences	Pem»	090		Pem			Pem .			
Fund Type		2		erespine.	6			8	a diamental de la company	RESOLUTION MAINTEN	4	A COMPANY OF THE PARTY OF THE PARTY	
Protected Phases	ADTON HOSE			6			8			4			
Permified Phases Detector Phases		2		6	6	TOTAL STREET	8	8	Allen Sternie anniew Charles In a s	4	4		
Minimum Initial (S)		2220		400	40		4.0	4.0		4.0	4.0		
Minimum Split (s)		21.0	SHIELD STREET	21.0	21.0	K DITTANTON COM	21.0	21.0		21.0	21.0	ran anna e ittema dan materiale de	and the second s
rotal Split (S)	e o o	255.0	0.0	55.0	55.0	00	35(07)	35.0	0.0	v35 <u>.0</u> s	35.0-	0.0	
Total Split (%)	0%	61%	0%	61%	61%	0%	39%	39%	0%	39%	39%	0%	non-incorporation and in the last
Maximum Green (s)		500		50.0	50.0		30.0	30.0		30.0	§30.0		
Yellow Time (s)	AND PLOCATION OF	3.0		3.0	3.0		3.0	3.0	eranner ar helitar	3.0	3.0		
All Red Time (s)		20		20	2.0		2.0	2.0		2.0	22.00		
Lead/Lag	Children a service of the service of				en en er benem de vertrebilde Volle	- Crabba & Constitution of	and the second second second	enerviorenterio	CERTAIN CONTROL		es de sense de la company		
Lead Lag Optimize?			7.7							3.0	3.0		
Vehicle Extension (s)		3.0	nia I masarrahalia YiYi.	3.0	3.0	erosson arabera	3.0	3.0	angga paga	3.0 Mins	Mid.		
Recall Modes		None.		None	None		Min	Min 5.0		5.0	5.0	en e	STATE APPRAISABLE SERVE
Walk Time (s)	~>=4==0	5.0	enangeritegsiis	5.0	5.0	NI NAMES NAMES NAMES NA	5.0 111.0	3.0 211.0%		11.0	(844.0).		
Flash Dont Walk (S)		3110		0	11.0 0		0	0	72.000 TO 1000	0	0	Over ender place on the	AND THE PROPERTY OF THE PROPER
Pedestrian Calls (#/hr)		0						77. S.			9		
Orevel enoug 500g (B)		#623			#679	(1786) 400 KW		28	ACCUPATION OF THE PARTY OF THE P	Salar Bed or night of criticals	37		
Queue Length 95th (ft) Internal Link Dist (ft)		#023						2632			\$2648		
50th Up Block Time (%)	NE VERIDIES		E PERSONAL PROPERTY.	1776/67/27AS	anamatan 1	enderen and an	ricerior eligibles	an experience of the second	CZPA-PORO KILODA	A STATE OF THE STA			
95th Up Block Time (%)					reere							\$ 15 Sec.	
Tum Bay Length (ft)	Company Comment	9844428640304B3	RESEARCH STREET	946029674026344	Walle in the Aber Germania	THE PERSON NAMED AS A SOUTH				Lagrantida ang NaPri	resulte completes as the first	armonymine 1400 finalesia	enancia lanciari presticazio esse
50th Bay Block Time 9													
95th Bay Block Time %	activity of the same of the	New Contraction	undravida (autawa)				na and economicalists	and the second s	consecutivi Adviselli		erice establish	anternara	anamaran da isang
Queuing Penalty (ven):													
Intersection Stormary													
The second secon	BILL					1000	Mark Co.						
Cycle Length: 90						STREET,	onessarana naza:	estant besetter allan	Street Lines and Street Street	theorem-144			
CONTRACTOR OF THE PROPERTY OF	70000	VEX PER S		5157146									
Natural Cycle: 80			\$20,552,549,610	SON CONTRACTOR	522 -64 404112225	Marie Contraction	29 a 40 000 and 1000 a 1 a 2000 a	200000000000000000000000000000000000000			ar Lament Produktion	nementa santikonemet Consti	e andressementes (NESSES)
Cantrol Type Actuated U	ncoordii	lated							SUB			地边南岸	
 Volume exceeds capa 	city, qu	eue is th	eoretical	ly infinit	e.			n (waterwijk apply E.P. Pill shape A.P.	in the Telephone	20597430 5031E-5	NAMES OF THE PARTY	Taran da	
 Onerie shown is maxif 	numsaft	er two cy	clessors										
# 95th percentile volum	е ехсее	ds capac	ity, quec	ie may l	be longe	r. 	waring theory lands	na maria da maria da la maria da maria		NATURAL SAN			
Circue shows is maxi-										end the			
Married in consequent to the married from coloring and participal property to the confidence of the large and the participal and the coloring for the coloring					.								
Splits and Phases: 3: N	/lassach	usetts A	venue &	Foster	Street								
					№ 04				ļ				
→ o2		3100 A 600 A 10	2000 March		35.28			ran en					
		and the second	AND THE PARTY OF T	- n specification)	-4. 4		.,		1				
₹ ø6				************	4√ 1 ø8		NAME OF TAXABLE PARTY.		12mm 22m				
			40 244	X 22 20	30 50 50 50 50 50 50 50 50 50 50 50 50 50	SOLD STATE	5440124		15				

	, A		*	*	4	Q	4	1	/	1	ļ.	4	
Movements & see a see	EBL.	EBE	(LBH)	WBL	WBL	WBR	NBES	NBT.	NBR#	(SBL)	SBIS	SBR	
Lane Configurations		\$			4	araka memusikan inakhabir	· various projections projections		***************************************	San	4 >		
Ideal Flow (vphpl)	1710	1710	1710	17/10	Old the Control of the Control	1710	1710	1710	1710	1/10	The state of the s	1710	
Total Lost time (s)		4.0		en anderson visuandurale	4.0	enan eranan basin 1700	er en	4.0	74 CABOTES A 1975		4.0	DEFECTION AND A	NEPERING PERING PARTY
Lane Util Factor		11.00			1.00			8100			0.94		
Frt	, Name of the state of the stat	1.00	eser tehennustiéé	schenostunenssenten	1.00		menser see	0.95			0.94		
Fili Protected its		100			1.00			Name and the fact			1531		erse erse erse
Satd. Flow (prot)	er carron carron carron	1672	vokovana needs		1676	energen regelek	******	1541	***********		1031		
FittPermitted:		1 00			0.99			10.00			1301		
Sald. Flow (perm)	enerodo nec	1672	na si kama ar share's	and the state of the state of	1660	92-41CAVAD-20181S	aud Narake	1275	06407-25		TOUT	S455 600 45	STEMPERSON
Volume (vph)	0	949	20182		818			0.92	0.92	0.92	0.92	0.92	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	U.UZ RESTRACIO	U.3Z	0.92 1885646	0.52	0.52 225555	
Adj. Flow (vph)	0.5	10325	20.22	73.41	889			28	0	0	47	0	
Lane Group Flow (vph)	0	1052	0	0	898	0	0	20 **********	ASSEMBLE OF	Penne	** /	59.8557.462	
Tem Type				Perm.			Perm	8		经自己的	4		
Protected Phases	D PERMITSING MANAGES	2	anakayen kores		6	MANAGE PROPERTY	993 CENT						
Permitted Phases				, b	50.0		2.5.2	7.0		e en contra	7.0		
Actuated Green, G (s)	erer ere ere ere	50.0	VERSKADOWE SERVI		U.UC			7.0 References					
Effective Green g (s)		51 0 0.76			0.76		News and	0.12			0.12		KANDAS MIKASAKANAN
Actuated g/C Ratio Clearance lime (s)	ADWING TO WAR	U./O			TANE A		W27466	essections.			5.0		
Vehicle Extension (s)		3.0			3.0		Mentere P	3.0			3.0	E6074620142000	epintolat (Nie-Answersenson
	NERSON DEPOSIT	~~~~~	\$559834595	(C1250) 220	1264	V00004-9555200	1000000	11502	6666		***********************		
Lane Grp Cap (vph). v/s Ratio Prot		d273 c0.63										ANTONIO PERIODETANTO	In the second se
vis Ratio Pems	PER				0.54			0:02			co:04		
v/s Ratio		0.83		is much the	0.71	\$419599596PB	CONTRACTOR OF	0.18		nd to the second	0.30	Park in which has continued and	Zyacasiai zean kieronnis
Uniform Delay di		T 50	Z EZ NE		9974929		THE REAL PROPERTY.	26.6			27.0		
Progression Factor		1.00	ns consider		1.00	STATE OF STA	orani prije provide prijek	1.00	***************************************	e Septimbles & protection	1.00		
Incremental Delay, d2		45			1.9			7.06			1.1		
Delay (s)	A SERVICION OF SERVICE	9.7	PER	NATURAL SALES SENSON	6.1	NOTES AND THE PARTY SHAPE OF THE PARTY OF TH	*************	27.1			28.1		
Level of Service		× A			/ A			$\mathbf{z} \sim \mathbf{C}$			C	28.50	
Approach Delay (s)	d-co-characteristic contract-	9.7	ite bilion to a second	bhiden dan'succession	6.1			27.1		nama amada asan anahiri	28.1	and the second of the second o	damenta e la noma describir de Colobbio.
Approach LOS		S A			A			G_{ij}			\$ 5. C		

Intersection Summary			0.7		CM LOV	al of Serv			Δ		15 1000		
HCM Average Control Del HCM Volume to Capacity			0.76			ensinees.		existing for			on property and the		a analysis (managements) and an
Actuated Evole Length (S)			670		in of la	sttime (s			8.0				
Intersection Capacity Utiliz	ration		71.6%			of Service		No de la company de la comp	C	europisch Joyce to (1927)	resonation estimation (1979)	· rec's less perhaps and a common to	any management of the control of the
c Critical Lane Group													

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	(EBK)	EBES	WBT.	WBR6	eseja s	SBB	ν9.
Lane Group) }	<u>ተ</u> ተ	† †		2.00.546	4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.	
Lane Configurations Ideal Flow(Voligh)	19002	TT	1900%	1900	1900	1900	
Storage Length (ft)	150		MILITER WOLLD	0	0	0	
Storage Lanes				0.0	0	-0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)		% 50	50				
Trailing Detector (ft)	0	0	0	*******	end marketings	**************************************	
Turning Speed (mph)	05			98	3 (15	Yes	
Right Tum on Red	arrinerario	9203552		Yes	station for	res	
Cink Speed (mpb)		2942	2962		2567	301000000000	
Link Distance (ft)		ERNO!	2502		58.3		
Volume (vph)	226	887	1137	168	0	0	STEAN CONTRACTOR CONTRACTOR OF THE STATE OF
Peak Hour Factor	0.92	0'92%	0.92	0.92	0.92	0.92%	
Lane Group Flow (vph)	246	964	1419	0	0	0	
	pm/pt/						9
Protected Phases	5	2	6		erecensors.		9
Permitted Phases Detector Phases	5	2	6				
Minimum Initial (5):	35 4.0	74 OZ	403		97400		30.740
Minimum Split (s)	9.0	21.0	21.0	AND AND PARTY OF THE PARTY OF T	etta tarricani en en en en	NEW CEICE AND YOU	9.5
Total Split (5)	<i>7</i> 15'0',	67.0	52.0	0.0	0.0	0.0	230
Total Split (%)	15%	67%	52%	0%	0%	0%	33%
Maximum Green (s)	100	62.0	47.0 3.0				3.5
Yellow Time (s)	3.0	3.0	3.0 269 02				E 20
All-Red Time (s) Lead/Lag	Lead		Lag			DOZNAKAZERA OZE	The state of the s
Lead-Lag Optimize?	Yes		. Yeš⊬				
Vehicle Extension (s)	3.0	3.0	3.0		mana etertebakeantetit	atternation of the	3.0
Recall Mode	None	None:	None				None
Walk Time (s)	SECURITARIA DE LA COMPANSION DE LA COMPA	5.0 110	5.0				
Flash Dont Walk (S) Pedestrian Calls (#/hr)		0	11.0 0				
Quetie Length 50th (fil)	2000	9 0	. 121			7007766	
Queue Length 95th (ft)	#131	0	173	ENCLASO SE VANCO	Olivination providence areas		
internal/Link/Dist (ft)		2862	2882		2487		
50th Up Block Time (%)	NEWSTERSTERS	NACONAL TRANSPORT		enterentation			
95th Un Block Time (Co)	150						
Tum Bay Length (ft)	130 2007	SHIS					
95th Bay Block Time %	Section Controls		Kille Market Kill (Kill)	0318867.8FB2.82F	dysteller energyes	CAT CATCHER CONTINUES AND A	
Queuing Fenalty (veh)							
intersection Summary							
	BD			100			
Cycle Length: 100	Control and the Artist and	NEW CATHERINE W	Majort Mater Andreas	22,000,000,000		na wasania tatibiti	
Actuated Cycle Length: 52	29					222.22	
Natural Cycle: 60	nerickerstreen	MACHER CONTROL	(0)\$155501 2 5550	ranistratio			
Control Type Actuated U # 95th percentile volume	uccoloin	le canac	ihr anen	e may h	e longei	54652786388	
#. 95th percentile volume S. Queue shown is maxin	and afte	rtwo e	des				
,							
Splits and Phases: 3: N	1assach	usetts A	venue &	Medford			
→ ø2	-				j	₽ ø9	
7/65	4.20	30 10 27		5×603642	Mile Ma	93450	
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ø5 ø6							

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Movement	SERIES	ZEBT	WBJ.	WBR	SBES	SBR S						
Lane Configurations	ሻ	^ ^	44		-					e nacional superior de l'accompany	erra ente chema sonibermentari necuni	ACM LIVE
Ideal Flow (volipl)	1710	S1710 2	<.1710 °	1710	1710	a1710						
Total Lost time (s)	4.0	4.0	4.0	ener. A transport of the transport			n Dangerang (Carataman)	erenan kakaran merena	PROVERSION OF THE PROPERTY OF			21025F1823
rane Util Tactor	100	0.95	0.95									
Fit	1.00	1.00	0.98							0510023541		
FIL Brotected	0.95	100	100		(Meaning)							
Satd. Flow (prot)	1593	3185 1200	3124 1.00		SECTION OF THE							
FILPermitted Satd. Flow (perm)	201	3185	3124	e densei	Market Cold						eranan kanan k Kanan kanan ka	(CANTAGE)
Volume (vph)	201	3103	1137.4	168	23.50m2	e e e e e e e e e e e e e e e e e e e				7-70-270		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92			HEROTE STANDARDA	en wegget en oanstere	JOHN CHANGE CONTRACTOR	E-PROFILED
Adjustiow (vph)	0.52	964	61236v	S 183		0.00						
Lane Group Flow (vph)	246	964	1419	0	0	0	N T TOTAL PROCESSION CONTRACTOR CONTRACTOR	THE COLUMN THE STREET	AND COUNTY OF STREET STREET	44- 634 (Janes 1991)		
Turn Type	pro+pt	25 S										
Protected Phases	5	2	6	egada, az jejn men i ela	MOZINI A-120M	PETANTER PROPERTY.						rich meno melalare
Permitted Phases	2											
Actuated Green, G (s)	47.8	52.8	32.6						eli elektrisi kananan eta elektrisi elektrisi	n mentalah senerahan kana		circrisciosis
Effective Green, g (5)	48.8	52.8	33 6									
Actuated g/C Ratio	0.92	1.00	0.64	OWNERS AND ARTHUR FOR THE	nerados para esta esta esta esta esta esta esta est	ur en man en languagen en en e						
Glearance Time (s)	5.0	5.0	20502	194.0								英数的数
Vehicle Extension (s)	3.0	3.0	3.0	ATTA TO STATE OF THE STATE OF T	ar-instruction	50 00000000000000000000000000000000000	use encomens in	San Statement	5024-000-000-00			
Lane Gip Cap (vph)	481	3185	1988									areas and a
v/s Ratio Prot	c0.11	0.30	c0.45		3857X75578							
V/s Ratio Perm v/c Ratio	0.51	0.30	0.71						er in de la company de la comp	Transmin and other	Transfer of the same	CONTRACTOR OF THE PERSON OF TH
Uniform Delay, di		2200	91264		300000000000000000000000000000000000000							18 - 18 E
Progression Factor	1.00	1.00	1.00		general segment	an article and the contact	(A) miles le se	ethe Thereto Andrews State & The Park Andrews Andrews	ere (Ecology-resonation	or the about man to see a second		
Incremental Delay, d2 s	0.9	0.77	3112									
Delay (s)	8.2	0.1	7.6	genden of the received				Laconnecton and action of the UNIO	no materiare di bergi emilete	ontra a superior a superior de	annumentumentumentume	. AND PARK A
Level of Service	Α	A	, F. A									
Approach Delay (s)	a versament permanent extension	1.7	7.6	erever lette erementet fan	0.0	strandorenski karenterik			THE REPORT OF THE PERSON OF			4000000000
Approach LOS		i A	A		A.							
Intersection Summary								A STATE OF S				
HCM Average Control Do	layan	No. of the	49	H (See	CM Lev	el of Servic		erio A				
HCM Volume to Capacity	/ ratio		0.67		March Street at a Street Street	-		ennamentarione	restantation (1996)	en en samme de la composition de la co	TENNING SERVERSING SERVERSING SERVERSING SERVERSING SERVERSING SERVERSING SERVERSING SERVERSING SERVERSING SER	
Activated/Cycle Centin (52/8	The second second second	the second second	stitime (s)		8.0				
Intersection Capacity Util		ensowernego; (COMO	66.2%)(Properties	U Leve	of Service	Santaningan kananan ka	B	nikeriyayaya			68216F
Critical Lane Group								沙里安尔	EN STATE OF	e de la company		

	<u> </u>		•	*	\ <u>\</u>	4	
Lane Group	e Pio		WBT	WEELS	SBI	SBR	90
Lane Configurations	ሻ	ት	ት ጉ	CO TOTAL CHAP			A STATE OF THE STA
Ideal Flow (vphpl)	#1900C	1900	1900	1900	31900s	1900	
Storage Length (ft)	150	STAND GUSTAGE	STATEMENTS	0	0	0	
Sterage Lanes	# 70 T			0	5 5 0	10,	
Total Lost Time (s)	4.0	4:0	4.0	4.0	4.0	4.0	
Leading Detector (tt)	50	5.500	50s				
Trailing Detector (ft)	0	0	0				
Turning Speed (mph) Right Turn on Red	15		564VISSON	Yes		Yes	
Enk Speed (mph)		e an a			30:		
Link Distance (ft)		2942	2962	CANTOCATICA	2567	potential property	
Travel Time (s)		66.9	67.3		58:3		
Volume (vph)	197	1020	1093	179	0	0	
Peak Hour Factor	0.92	0.92	0.92	0.92	100 100 CT 100 200 1	Court of the state of the state of the	
Lane Group Flow (vph)	214	1109	1383	0	0	0	
Turri Type	em et	2	6				9
Protected Phases Permitted Phases	5						
Detector Phases	5	2	6	eru varenda 1	en e	2.00% 4.00% 07.00 T.W	
Minimum (hittal (s)	4.0%	40	40		Maria - 15		40^{\prime}
Minimum Split (s)	9.0	21.0	21.0		programme 4 6w2/1	and the second second	9.5
Total Split(s)	15.0	67.0	52.0	0.0	0.0	0.0	
Total Split (%)	15%	67%	52%	0%	0%	0%	33%
Maximum Green (s)	10.0 3.0	62.0 3.0	47.0 3.0				3.5
Yellow Time (s) All Red Time (s)	3.U 2008	2.0	2.0				2.0
Lead/Lag	Lead		Lag		econsecutive and a	NATIONAL SPECIAL SPECI	\$\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\texitt{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{\$\text{
Lead-Lag Optimize?	VSYES!		Yes				
Vehicle Extension (s)	3.0	3.0	3.0		name sortividisco	vernio minochi (25.5	3.0
Récall-Mode	None		None				None
Walk Time (s)		5.0 ************************************	5.0 11.0				
Flash Dont Walk (s) Pedestrian Calls (#/hr)		0	0				
Queue Length 50th (tr)	- 10 O	0	6 115				
Queue Length 95th (ft)	91	0	166	SELECTION CONTRA	\$53850CCB850C0 2210	Company to the control	
Internal Link Dist (tt)		2862.	2882		2487		
50th Up Block Time (%)		entennuotaanen	et vanderstenstenske	waren eta era era era era era era era era era er	reskingelunisti	estansa entre en	
95thatic Block June (%)							
Turn Bay Length (ft)	150						
95th Bay Block Time %	2300000				Name of Street, Street	SPECIAL SPECIAL PROPERTY.	
Oceang Penalty (veh)							
Intersection Schumaly							
	CBD						
	- CANADA - CANADA	CONTRACTOR OF STREET		STATE OF STA	zwycza az er west w	edel to produce service	
Cycle Length: 100 Actuated Cycle Pength: 5	0.5						
Natural Cycle: 60			we assume the company of	ones energy from	executation (SOSIONARUT (TEXT	
control Type: Actuated C	Incoordir	iated					
Splits and Phases: 3: I	Massach	usetts A	venue &	Medford	d Street		
i a						₽ ø9	
- → ø2			A 100 A		Contract Contract	τ Α φ9	
biological and a	and the second	CONTRACTOR		HEAT OF SERVICE SERVIC	501/35 153 -	ure estimation	Appropriate Activities and Appropriate Control of Contr
ø5 <u>ø6</u>			A-1000 1000 1000 1000 1000 1000 1000 100		And State of		ł

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Movement	TERIS	2 F B T S	WETE	WBRS	SBL	SBR
Lane Configurations .	ኝ	† †	4 p			
ideal Elow (vphpl) seeks	/1710 S	4710-	1710 -	1710	377IO	51710
Total Lost time (s)	4.0	4.0 0.95	4.0	istevedjas		
Eane Util Factor, c	1.00 1.00	1.00	0.98	A CONTRACTOR		
FIT Professed	7.00 7.0095	2100	1.00			
Satd. Flow (prot)	1593	3185	3118	Angeles and the second section		
FIFPermitted	0.12	1.00	1.00			
Satd. Flow (perm)	209	3185 3020	3118		Herving.	
Volume (vph) Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Add Flow (vph)	552145	24.1093	AM884	195	0	
Lane Group Flow (vph)	214	1109	1383	0	0	0
Tum Type	pm+pt				使更新	
Protected Phases	5	2	6	the state of the s		
Permitted Phases Actuated Green, G (s)	45.3	50.3	30.4			
Effective Greening (S)	35.5 3463	50.0	314			
Actuated g/C Ratio	0.92	1.00	0.62	egestour pro-pyrames		
Clearance:Time (s);	5.50	5.0	5.0			
Vehicle Extension (s)	3.0	3.0	3.0 #1946	retalik kinde	va kovišta (ili to a	
Lane Gro Cap (vph)	492 0.09	3[85] c0.35	c0.44			
Vis Ratio Pem	20312	CO.55	00.44			
v/c Ratio	0.43	0.35	0.71	Karana da seranga dan Karana da	Charling of Charles	
Opifom Delay d1	5.0	0.0	6.4			
Progression Factor	1.00	1.00	1.00			
incremental Delay, d2. Delay (s)	5.6	0.1	7.6			
Level of Service	A.	A C	A.			
Approach Delay (s)		1.0	7.6	communication of textures	0.0	
Approach LOS		, A	A.		a de A	
Intersection Summary						
HCM:Average Control De			4		CM:Lev	veliof:Service A
HCM Volume to Capacity			0.59			ost-time (s) 440
Actuated Cycle Length (S Intersection Capacity Utili		HIS SELECT	63.2%			el of Service B
c. Critical Lane Group						
A STATE OF THE PARTY OF THE PAR	PORTUGUES AND CONTRACTOR OF STREET	en in water the will be to be the factor.	ACTION CONTRACTOR CONT	, , , (°	Annual VI also American Will.	- ····· · · · · · · · · · · · · · · · ·

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Vanasse Hangen Brustlin, Inc.

Cost Estimate

Transportation Land Development Environmental Services

101 Walnut Street
Post Office Box 9151
Watertown
Massachusetts 02471
617 924 1770



Vanasse Hangen Brustlin, Inc.

CONCEPTUAL COST ESTIMATE Massachusetts Avenue Tranportation Improvements Arlington, Massachusetts

Total Cost Segment \$159,183.00 Mill Street to Water Street \$374,721.00 Water Street to Franklin Street \$572,490.50 Franklin Street to Grafton Street \$307,663.25 Grafton Street to Marathon Street \$599,605.50 Marathon Street to Alewife Brook Parkway \$2,013,663.25 SUBTOTAL: \$402,732.65 20 % Contingency: \$2,416,395.90 TOTAL: \$2,420,000 SAY:

This estimate does not consider any Permitting or Police Services.

Transportation Land Development Environmental

Services

101 Walnut Street
Post Office Box 9151
Watertown
Massachusetts 02471
617 924 1770

\$374,721.00

Section TOTAL:



Mill Street to Water Street (1,150 lf)

Vanasse Hangen Brustlin, Inc.

CONCEPTUAL COST ESTIMATE

WIII DUEL TO MALE! DUECU (1, 100 II)			
Description	Unit Price	Quantity	Total Cost
Cold Plane # Pavement Overlay	\$1.80 /SY	8435 5Y	\$15,183.00
Granite Curb Removed & Reset	\$22.00 /LF	175 LF	\$3,850.00
Full Depth Pavement (less than 3.0' wide)	\$37.00 <i>[</i> 5Y	0 SY	\$0.00
Cement Concrete Sidewalk	\$53.00 /SY	80 SY	\$4,240.00
Brick Sidewalk	\$80.00 /SY	230 SY	\$18,400.00
Loam & Seed	\$3.75 /SY	0 SY	\$0.00
Traffic Signal Upgrade	\$100,000.00 /EA	1 EA	\$100,000.00
Pavement Markings	\$3,510.00 /LS	1 15	\$3,510.00
Brick Sidewalk Bulb-Out	\$3,500.00 /EA	4 EA	\$14,000.00
		Section TOTAL:	\$159,183.00
W. Clark La Franklin Shroot (1.700 F)			
Water Street to Franklin Street (1,700 lf)	Unit Price	Quantity	Total Cost
Description C. L. Bloom and Overday	\$1.80 /5Y	13045 SY	\$23,481.00
Cold Plane & Pavement Overlay	\$22.00 /LF	260 LF	\$5,720.00
Granite Curb Removed & Reset	\$80.00 /SY	415 SY	\$33,200.00
Brick Sidewalk	\$3.75 <i> </i> 5Y	0 SY	\$0.00
Loam Borrow & Seed	\$100,000.00 /EA	3 EA	\$300,000.00
Traffic Signal Upgrade	\$5,320.00 /LS	1 15	\$5,320.00
Pavement Markings			\$7,000.00
Brick Sidewalk Bulb-Out	\$3,500.00 /EA	2 EA	Ψ7,000.00

Transportation Land Development Environmental Services

101 Walnut Street
Post Office Box 9151
Watertown
Massachusetts 02471
617 924 1770



Vanasse Hangen Brustlin, Inc.

CONCEPTUAL COST ESTIMATE

Franklin S	Street to	Grafton	Street ((2,800 lf)
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Description	, <u>Unit Price</u>	Quantity	Total Cost
Cold Plane # Pavement Overlay	\$1.80 /5Y	15560 SY	\$28,008.00
Granite Curb Removed & Reset	\$22.00 /LF	3360 LF	\$73,920.00
Granite Curb	\$38.00 /LF	630 LF	\$23,940.00
Pavement Removal	\$12.50 <i>[</i> 5Y	5000 SY	\$62,500.00
Cement Concrete Sidewalk	\$53.00 /5Y	4500 SY	\$238,500.00
Loam Borrow \$ Seed	\$3.75 <i>I</i> 5Y	7310 SY	\$27,412.50
Traffic Signal Upgrade	\$100,000.00 /EA	1 EA	\$100,000.00
Pavement Markings	\$6,210.00 /LS	1 15	\$6,210.00
Cement Concrete Sidewalk Bulb-Out	\$3,000.00 /EA	4 EA	\$12,000.00

Section TOTAL: \$572,490.50

Grafton Street to Marathon Street (1,150 lf)

Description	Unit Price	Quantity	Total Cost
Cold Plane & Pavement Overlay	\$1.80 /5Y	8690 SY	\$15,642.00
Granite Curb Removed # Reset	\$22.00 /LF	1380 LF	\$30,360.00
Granite Curb	\$38.00 /LF	345 LF	\$13,110.00
Pavement Removal	\$12.50 /SY	1100 SY	\$13,750.00
Cement Concrete Sidewalk	\$53.00 /SY	2300 SY	\$121,900.00
Loam Borrow & Seed	\$3.75 /SY	1155 SY	\$4,331.25
Traffic Signal Upgrade	\$100,000.00 /EA	I EA	\$100,000.00
Pavement Markings	\$2,570,00 /L5	1 L5	\$2,570.00
Cement Concrete Sidewalk Bulb-Out	\$3,000.00 /EA	2 EA	\$6,000.00
Cellient Concrete Sidewalk Dub-Out	40,000.00		

Section TOTAL: \$307,663.25

Transportation Land Development Environmental

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Vanasse Hangen Brustlin, Inc.

CONCEPTUAL COST ESTIMATE

Marathon Street to Alewife Brook Parkway (1,900 lf)

Description Unit Price Quantity Total C	<u>cost</u>
Cold Plane & Pavement Overlay \$1.80 /SY 10835 SY \$19	,503.00
Grante Curb Removed & Reset \$22.00 /LF 2340 LF \$51	,480.00
628 00 #F 585 IF \$22	,230.00
67anice Curb	,000.00
1 avenient Nemova 2505 SV \$189	,945.00
teo oo ISV 370 SY \$25	,600.00
DFICK SIGNWAIK 5410 SV \$20),287.50
LOSIN DOLLOW & DEED \$200	00.000,0
Traffic Signal Upgrade \$100,000.00 727	1,560.00
Pavement Markings	3,000.00
Cement Concrete Sidewalk Bulb-Out \$3,000.00 /EA 6 LA \$100.00	· • · - ·

Section TOTAL: \$599,605.50

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Vanasse Hangen Brustlin, Inc.

UNIT COSTS

Prices Based on MHD Weighted Average Bid Prices (2004)

rull Depth	ravement	•
		Depth (IN)

·	Depth (IN)	Width (in)	Conversion	<u>Unit Cost</u>	
Hot Mix Asphalt	. 2	N/A	0.0560 Ton/SY*IN	\$45.00 /Ton	\$5.04
Hot Mix Asphalt Binder Course	2	N/A	0.0560 Ton/SY*IN	\$45.00 /MG	\$5.04
Hot Mix Asphalt Base Course	4	N/A	0.0560 Ton/SY*IN	\$45.00 /MG	\$10.08
Dense Graded Crushed Stone	4	N/A	0.0278 YD/IN	\$40.00 MD ³	\$4.44
Gravel Borrow	8	N/A	0.0278 YD/IN	\$15.00 MD ³	\$3.33
Unclassified Excavation	20	N/A	0.0278 YD/IN	\$12.00 MD ³	\$6.67
	N/A	N/A	N/A	\$2.00 /5Y	\$2.00
Fine Grading and Compacting	* 4/ 1 (,	• • •	per SY Total=	\$36.60
				1	

\$37.00 Full Depth Pavement COST PER SY=

Hot Mix Asphalt Walk Surface

	Depth (m)	Width (in)	Conversion	<u>Unit Cost</u>	
Hot Mix Asphalt	3	N/A	0.0560 Ton/SY*IN	\$85.00 /Ton	\$14.28
Gravel Borrow	8	N/A	0.0278 YD/IN	\$22.00 MD ³	\$4.89
į.	11	N/A	0.0278 YD/IN	\$18.00 MD3	\$5.50
Unclassified Excavation	N/A	N/A	N/A	\$1.75 /SY	\$1.75
Fine Grading and Compacting	14/7	,,,,		per SY Total=	\$26.42

Hot Mix Asphalt Walk Surface COST PER SY=

Hot Mix Asphalt Driveway

•	Depth (m)	Width (in)	Conversion	<u>Unit Cost</u>	
Hot Mix Asphalt	3.5	N/A	0.0560 Ton/SY*IN	\$90.00 /Ton	\$17.64
Gravel Borrow	8	N/A	0.0278 YD/IN	\$22.00 MD ³	\$4.89
Unclassified Excavation	11.5	N/A	0.0278 YD/IN	\$18.00 MD ³	\$5.75
	N/A	N/A	N/A	\$1.75 /5Y	\$1.75
Fine Grading and Compacting	MIX	13/1	., .	per SY Total=	\$30.03

\$30.00 Hot Mix Asphalt Driveway COST PER SY=

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Cement Concrete Walk/	Wheelch	air Ramps	5		
	Depth (in)	Width (in)	Conversion	<u>Unit Cost</u>	
Cement Concrete	4	N/A	N/A	\$40.00 /5Y	\$40.00
Gravel Borrow	8	N/A	0.0278 YD/IN	\$22.00 MD ³	\$4.89
Unclassified Excavation	12	N/A	0.0278 YD/IN	\$18.00 MD3	\$6.00
Fine Grading and Compacting	N/A	N/A	N/A	\$1.75 /SY	\$1.75
,				per SY Total=	\$52.64
	Сете	nt Concret	e Walk / Wheelchair Ram	p COST PER SY=	\$53.00
Granite Curb				ttick Canb	
	·-	Width (in)	Conversion	Unit Cost	\$30.00
Granite Curb	N/A	N/A	N/A	\$30.00 /LF \$40.00 /SY	\$2.22
Cement Concrete	6	N/A	0.0093 SY/ FT*IN	\$40.00 /51 \$22.00 /YD ³	\$3.67
Unclassified Excavation	18	N/A	0.0093 SY/ FT*IN	per LF Total=	\$35.90
				per Li Total—	\$55.50
			Granite C	urb COST PER LF=	\$36.00
			BA		
Pavement Removal				that Coat	
	Depth (IN)		Conversion	<u>Unit Cost</u> \$18.00 MD³	\$7.50
Unclassified Excavation	15	N/A	0.0278 YD/IN	\$12.00 MD ³	\$5.00
Ordinary Borrow	15	N/A	0.0278 YD/IN		\$12.50
				per SY Total=_	Ψιζισο
			Pavement Remo	val COST PER SY=	\$12.50
Loam Borrow and Seed					
	Depth (IN)	Conversion	Unit Cost	*~ ~~
Loam Borrow	4		0.0278 YD/IN	\$24.00 MD ³	\$2.67
Seed				\$1.00 /5Y	\$1.00
				per SY Total=	\$3.67
			Loam Borrow and Se	red COST PER SY=	<u>\$3.75</u>

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Pavement Markings		Unit Cost	
12" White Line 4" Yellow Line		\$1.40 /LF \$0.85 /LF	\$1.40 \$1.40
		nite Line COST PER LF=	\$1.40 \$0.85
Cement Concrete Bulb-out			
	Quantity	<u>Unit Cost</u> \$38.00 /LF	\$1,900.00
Granite Curb Cement Concrete Sidewalk	50 LF 20 5Y	\$53.00 /SY	\$1,060.00
		per EACH otal=	\$2,960.00
	Cement Concrete Bult	o-out COST PER EACH=	\$3,000.00
Brick Bulb-out	0	Unit C <u>ost</u>	
C. In Cut.	<u>Quantity</u> 50 LF	\$38.00 /LF	\$1,900.00
Granite Curb Brick Sidewalk	20 5Y	\$80.00 /SY	\$1,600.00
•		per EACH otal=	\$3,500.00
	Cement Concrete Bul	b-out COST PER EACH=	\$3,500.00

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Vanasse Hangen Brustlin, Inc.

This estimate assumes the following:

Mill Street to Water Street (1,150 lf)

Pavement

Assume existing pavement width is approx 66'
Assume matching existing pavement width
Assume 2-12' lanes and 8.5' parking lane for each side
Assume Cold Plane \$ Overlay

Granite Curb

Assume there is 75% existing granite curb along corridor Assume existing granite curb can be removed and reset if needed Assume 10% of curb needs removing and resetting

Loam \$ Seed

Assume no areas require loam \$ seed

Sidewalk

Assume sidewalk reconstruction matching existing width of 12 feet on both sides Assume 75% of sidewalk brick and 25% cement concrete Assume 10% of sidewalk requires reconstruction

Dramage

Assume 4 structures need to be adjusted

Pavement Markings

Assume 2300 LF of 4" yellow line (DYCL) at \$0.40/LF = \$920Assume 2300 LF of 4" white line (SWEL) (both sides) at \$0.40/LF = \$920Assume 600 LF of 4" white line (BWLL) at \$0.40/LF = \$240Assume 350 LF of 12" white line (SL & CW) at \$1.40/LF = \$490Assume 170 SF of pavement markings at \$3.50/SF = \$600Assume 84 parking stall markings at 10 LF of 4" white line/stall at \$0.40/LF = \$340Total Pavement Marking = \$3510

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Vanasse Hangen Brustlin, Inc.

This estimate assumes the following:

Water Street to Franklin Street (1,700 lf)

Pavement

Assume existing pavement width is approx 78'
Assume matching existing pavement width
Assume 2-12' lanes and 8.5' parking lane for each side
Assume Cold Plane \$ Overlay

Granite Curb

Assume there is 75% existing granite curb along corridor Assume existing granite curb can be removed and reset if needed Assume 10% of curb needs removing and resetting

Loam # Seed

Assume no areas require loam ≰ seed

Median

Assume all medians require no reconstruction

Sidewalk

Assume sidewalk reconstruction matching existing width of 12° on both sides Assume 100% of sidewalk brick Assume 10% of sidewalk requires reconstruction Assume 90% of length has sidewalk

Dramage

Assume 4 structures need to adjusted

Pavement Markings

Assume 3400 LF of 4" yellow line (DYCL) at \$0.40/LF = \$1360Assume 3400 LF of 4" white line (SWEL) (both sides) at \$0.40/LF = \$1360Assume 850 LF of 4" white line (BWLL) at \$0.40/LF = \$340Assume 450 LF of 12" white line (SL \$ CW) at \$1.40/LF = \$630Assume 355 SF of pavement markings at \$3.50/SF = \$1250Assume 94 parking stall markings at 10 LF of 4" white line/stall at \$0.40/LF = \$380Total Pavement Marking = \$5320

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This estimate assumes the following:

Franklin Street to Grafton Street (2,800 lf)

Pavement

Assume 50' cross section 1 - 12' lane w/ 5' striped bike lane \$ 8' parking in each direction Assume existing pavement width is approx 66' Assume narrowing pavement width 16 feet (8' each side) Assume Cold Plane \$ Overlay

Granite Curb

Assume there is 75% existing granite curb along corridor Assume removing and resetting both sides of roadway Assume 80% existing granite curb can be removed and reset Assume 20% of new granite curb required

Loam # Seed

Assume 4" depth for all loam \$ seed areas

Assume loam \$ seed existing pavement that is being removed (approx 8' width)

Assume existing loam and seed along 50% of corridor

Assume existing loam \$ seed width is approx 7.5' (area between exist curb \$ exist sidewalk)

Sidewalk

Assume sidewalk reconstruction matching existing width of 8' on both sides Assume 100% of sidewalk cement concrete Assume 100% of sidewalk requires reconstruction Assume 90% of length has sidewalk

Dramage

Assume CIT the existing basins and adding new catch basins
Assume 300' spacing for basins
Assume 10 sets of basins (14 cb)
Assume 6 If of 12"RCP to connect each of the new structues

Pavement Markings

Assume 5600 LF of 4" yellow line (DYCL) at \$0.40/LF = \$2240

Assume 5600 LF of 4" white line (SWEL) (both sides) at \$0.40/LF = \$2240

Assume 465 LF of 12" white line (SL & CW) at \$1.40/LF = \$650

Assume 105 SF of pavement markings at \$3.50/SF = \$370

Assume 176 parking stall markings at 10 LF of 4" white line/stall at \$0.40/LF = \$710

Total Pavement Marking = \$6210

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Vanasse Hangen Brustlin, Inc.

This estimate assumes the following:

Grafton Street to Marathon Street (1, 150 lf)

Pavement

Assume 68' cross section 4 lanes -11' inside lanes 15' outside lanes \$ 8' parking on both sides Assume existing pavement width is approx 76' Assume narrowing pavement width 8 feet (4' each side)

Assume Cold Plane # Overlay

Granite Curb

Assume there is 75% existing granite curb along corridor Assume removing and resetting both sides of roadway Assume 80% existing granite curb can be removed and reset Assume 20% of new granite curb required

Loam ¢ Seed

Assume 4" depth for all loam ₱ seed areas Assume loam \$ seed existing pavement that is being removed (approx 4' width) Assume exist loam and seed area along 75% from Grafton St to Oxford St Assume existing loam \$ seed width is approx 7' (area between exist curb \$ exist sidewalk)

5idewalk

Assume sidewalk reconstruction matching existing width of 10' on both sides Assume 100% of sidewalk cement concrete Assume 100% of sidewalk requires reconstruction Assume 90% of length has sidewalk

Dramage

Assume CIT the existing basins and adding new catch basins Assume 300' spacing for basins Assume 7 sets of basins (14 cb) Assume 6 If of 12"RCP to connect each of the new structues

Pavement Markings

Assume 2300 LF of 4" yellow line (DYCL) at \$0.40/LF = \$920Assume 2300 LF of 4" white line (SWEL) (both sides) at \$0.40/LF = \$920Assume 220 LF of 12" white line (SL \neq CW) at \$1.40/LF = \$310 Assume 28 SF of pavement markings at \$3.50/SF = \$100 Assume 80 parking stall markings at 10 LF of 4" white line/stall at \$0.40/LF = \$320 Total Pavement Marking = \$2570

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Vanasse Hangen Brustlin, Inc.

This estimate assumes the following:

Marathon Street to Alewife Brook Parkway (1,950 lf)

Pavement

Assume 50' cross section 1-12' lane w/5' striped bike lane \$8' parking in each direction Assume existing pavement width is approx 66.5'
Assume narrowing pavement width 16 feet (8' each side)
Assume Cold Plane \$ Overlay

Granite Curb

Assume there is 75% existing granite curb along corridor Assume removing and resetting both sides of roadway Assume 80% existing granite curb can be removed and reset Assume 20% of new granite curb required

Loam # Seed

Assume 4" depth for all loam \$ seed areas

Assume loam \$ seed existing pavement that is being removed (approx 8' width)

Assume exist loam \$ seed width is approx 7.5' from Marathon St to Henderson St and approx 6' from Boulevard Rd to Alewife Brook Parkway

Assume exist loam \$ seed along 75% of above lengths

Sidewalk

Assume sidewalk reconstruction matching existing on both sides:

cement concrete walk from Marathon St to Henderson St width of 8.5'

cement concrete walk from Henderson St to Boulevard Rd width of 16'

brick walk from Boulevard Rd to Alewife Brook Parkway width of 9.5'

Assume 100% of sidewalk requires reconstruction

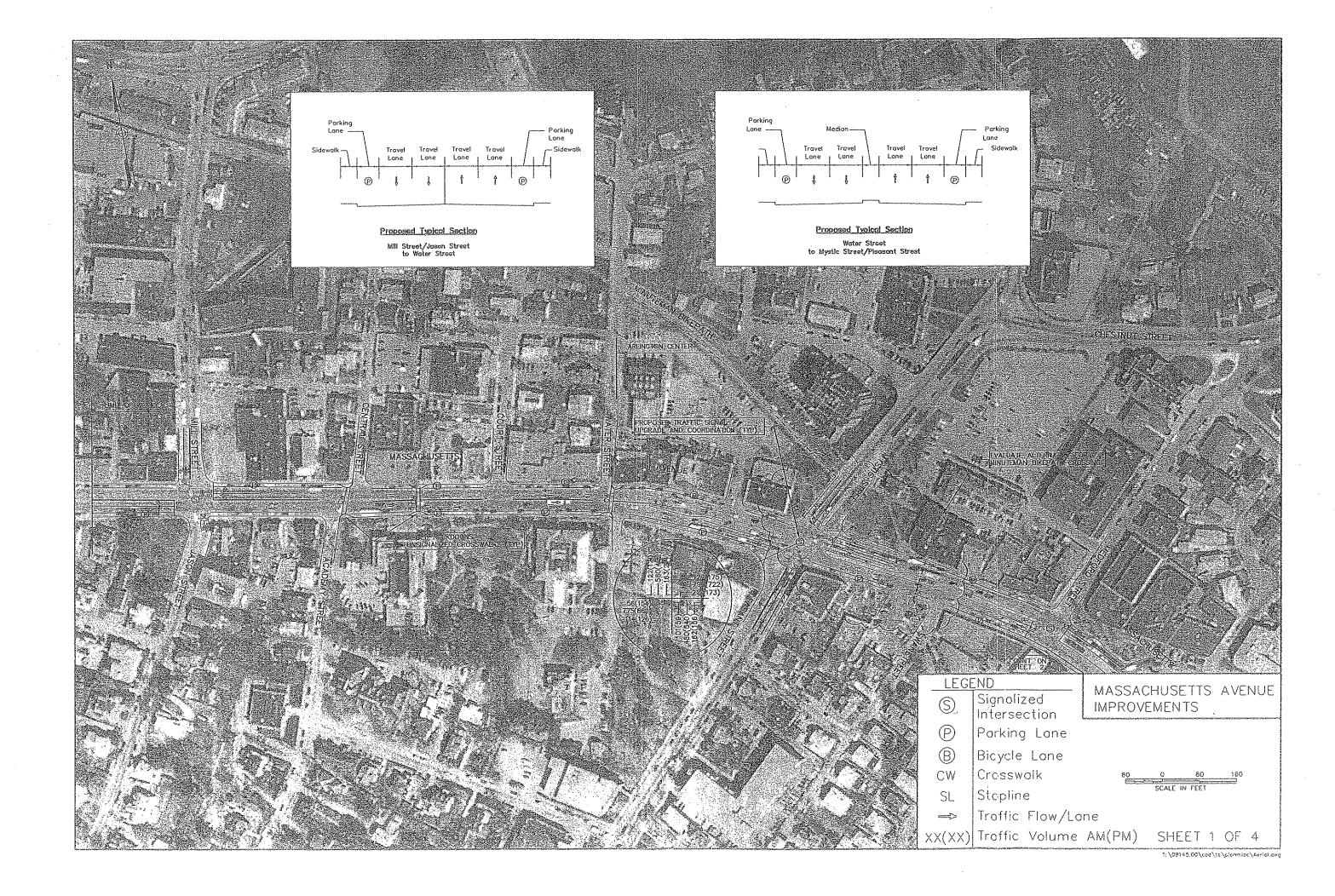
Assume 90% of length has sidewalk

Dramage

Assume CIT the existing basins and adding new catch basins
Assume 300' spacing for basins
Assume 7 sets of basins (14 cb)
Assume 6 if of 12"RCP to connect each of the new structues

Pavement Markings

Assume 3900 LF of 4" yellow line (DYCL) at \$0.40/LF = \$1560
Assume 3900 LF of 4" white line (SWEL) (both sides) at \$0.40/LF = \$1560
Assume 565 LF of 12" white line (SL & CW) at \$1.40/LF = \$800
Assume 58 SF of pavement markings at \$3.50/SF = \$200Assume 110 parking stall markings at 10 LF of 4" white line/stall at \$0.40/LF = \$440Total Pavement Marking = \$4560





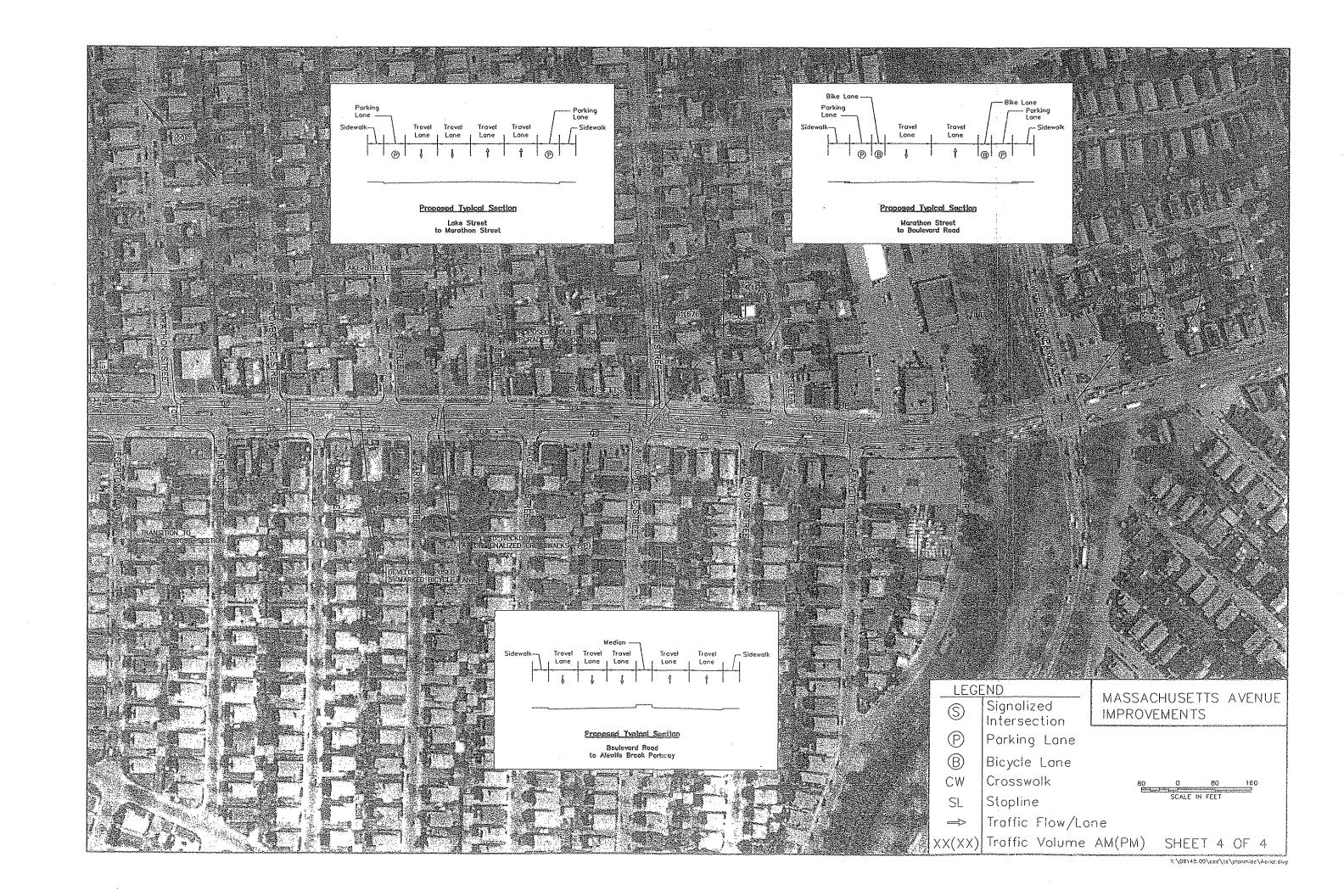
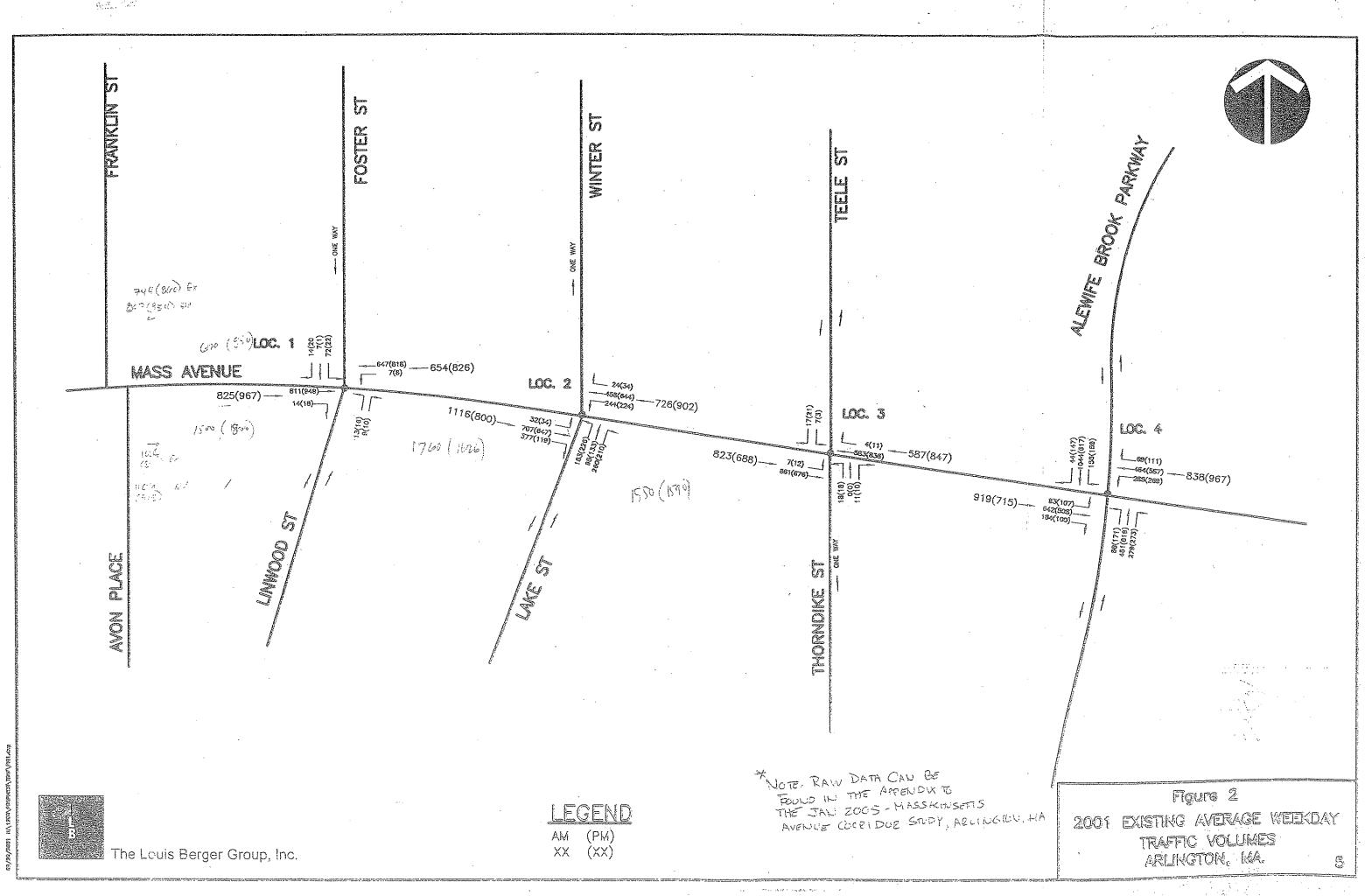
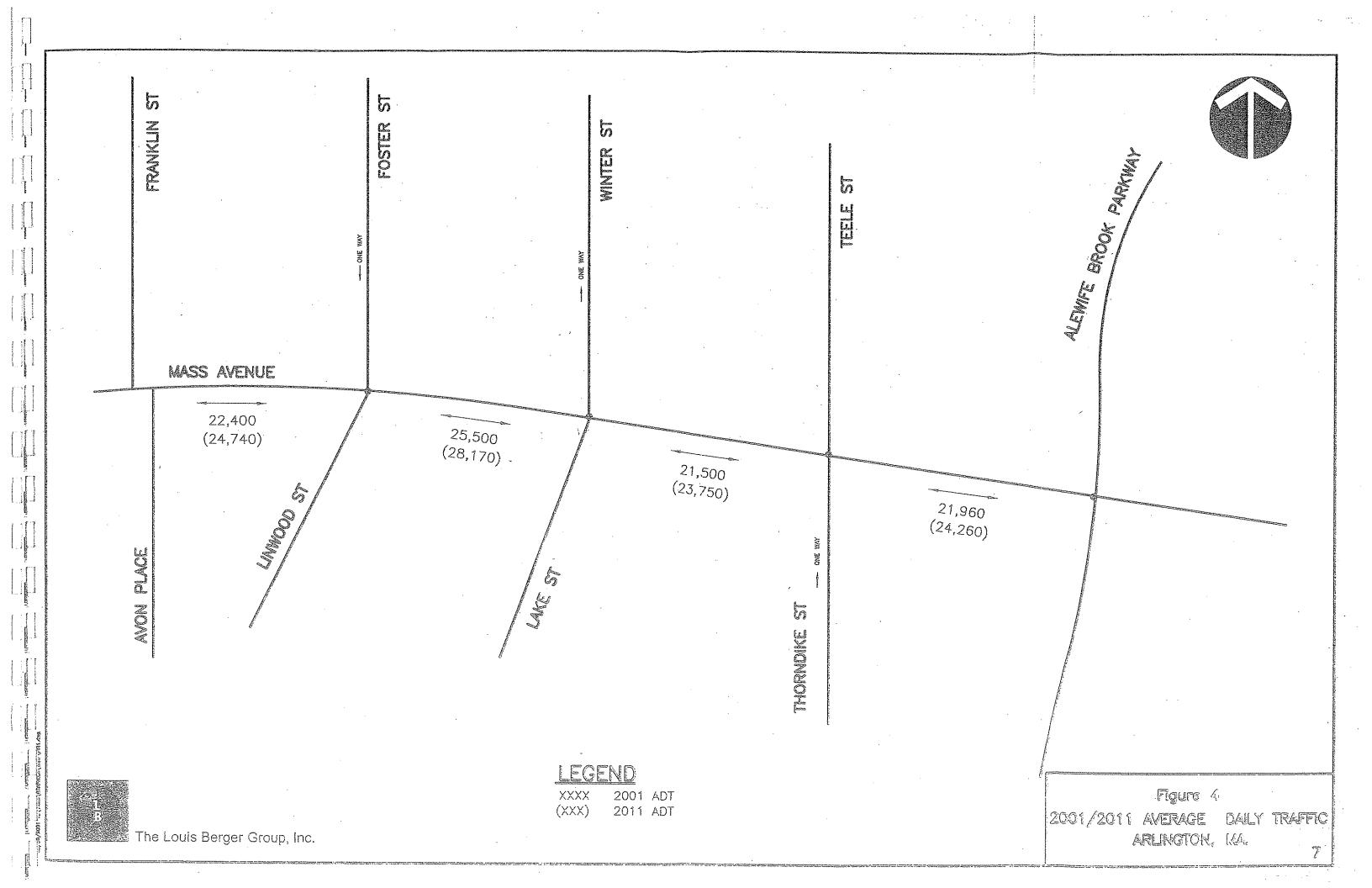
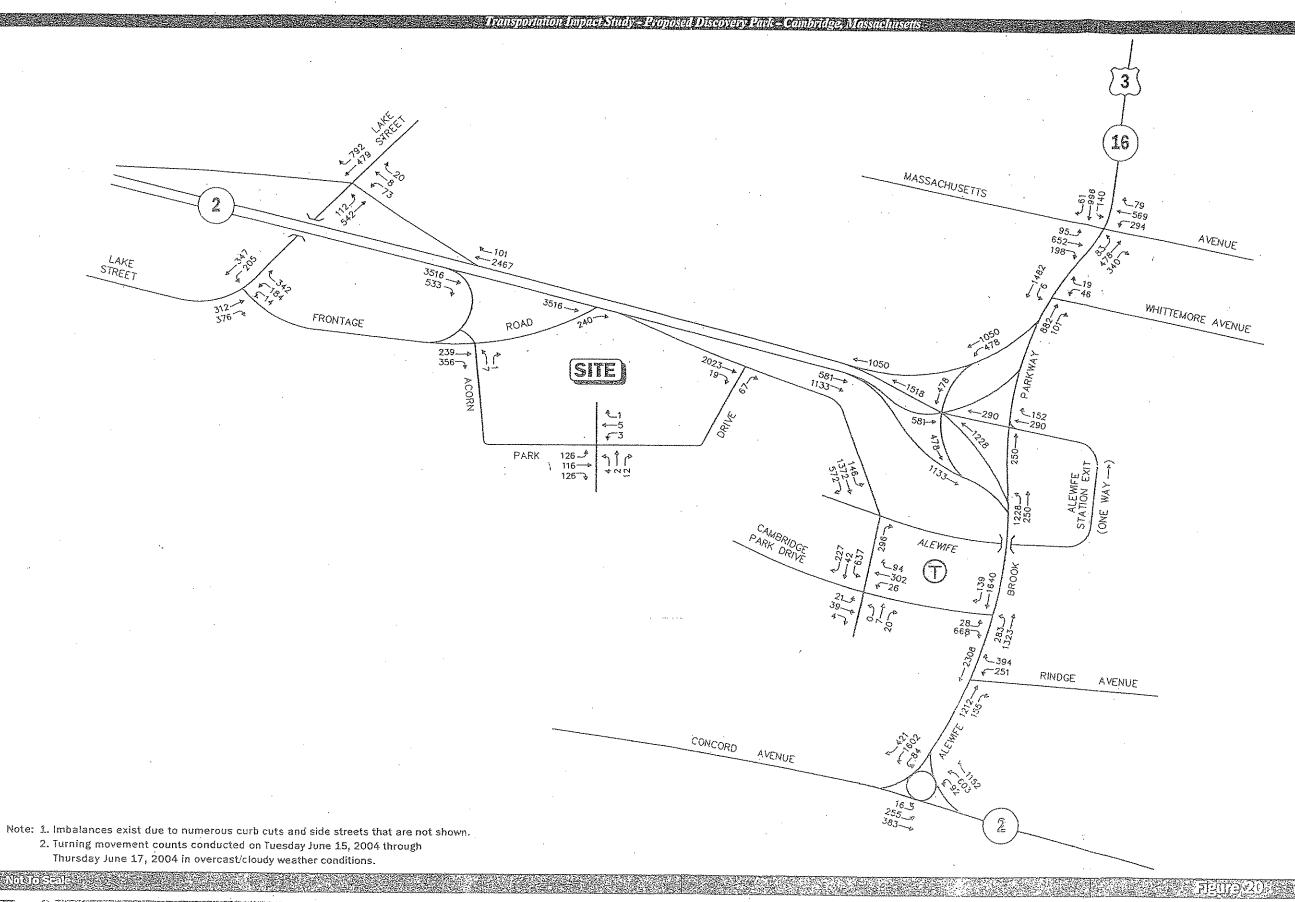


Table 2 Vehicular Crash Summary (2000-2002)

						Massachusel	tts Avenue at:				•		
	Mill St/Jason St	Water St .	Mystic St/Pleasant St	Medford St	Franklin St	Tufts St	Bates Rd	Grafton St/Orvis St	Winter St	Lake St	Teel St/Thorndike St	Alewife Brook Pkwy	Tota
ignalized?	Yes	· No	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	
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otal	21	5	44	1	6	2	8	8	3	16	<u>×</u>	55	17
ollision Type											• • • • • • • • • • • • • • • • • • •	30	17
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Rear-end	2	0	24	1	3	0	Ę.	n	1	0	Ų	0	2
<u>Jnknown</u>	6	1	7	N	1	1	1	4	1	ა	. 4	20	60
Total	21	5	<u>-</u> 44	1	<u> </u>	2	<u>1</u> g	<u>4</u> 8	3	<u>ತ</u> 16	1	<u>13</u> 55	<u>39</u> 17
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Fatality ·	^	۸	0	. 0	^		_	_				***************************************	•
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njury Property	17	š 4	15 28	Ü	2	0	4	5	1	3	0	12	47
<u>Jnknown</u>	**	4		1	4	2	4	2	1	13	2	41	119
Total	<u>0</u> 21	<u>u</u>	<u>0</u>	<u>U</u>	<u>U</u>	· <u>U</u>	$ar{ar{\Omega}}$	1	<u>0</u>	<u>0</u>	Q	<u>0</u>	1
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):01 AM - 3:59 PM	8	4	21	0	4	1	4	2	0	8	0	24	76
4:00 PM - 6:00 PM	5	0	6	0	0	0	0	2	0	Ō	Õ	7	20
6:01 PM - 6:59 AM	4	$\overline{0}$	<u>10</u> 44	Q	2	1_1	<u>3</u>	1	<u>2</u>	<u>6</u>	1.	13	43
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Vionday-Friday	18	4	35	1	4	2	6	7	1	.10	2	7.77	4.0-
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ce	1	0	1	n	0	0	U O	U	U	0	0	0	1
Other	, O	0	'n	0	0	0	ņ	V	U	Ü	0	0	2
Jnknown	1	n	1	ñ	1	U 1	0	Ū ^	U	1	0	1	2
otal	21	<u>5</u>	44	<u>v</u> 1	<u>.i</u> 6	. 1/2	<u>y</u>	<u>V</u>	<u>υ</u>	2	<u>ū</u>	1	. 7
		***	, ,	,	0	, ***	•	0	3	16	2	55	17
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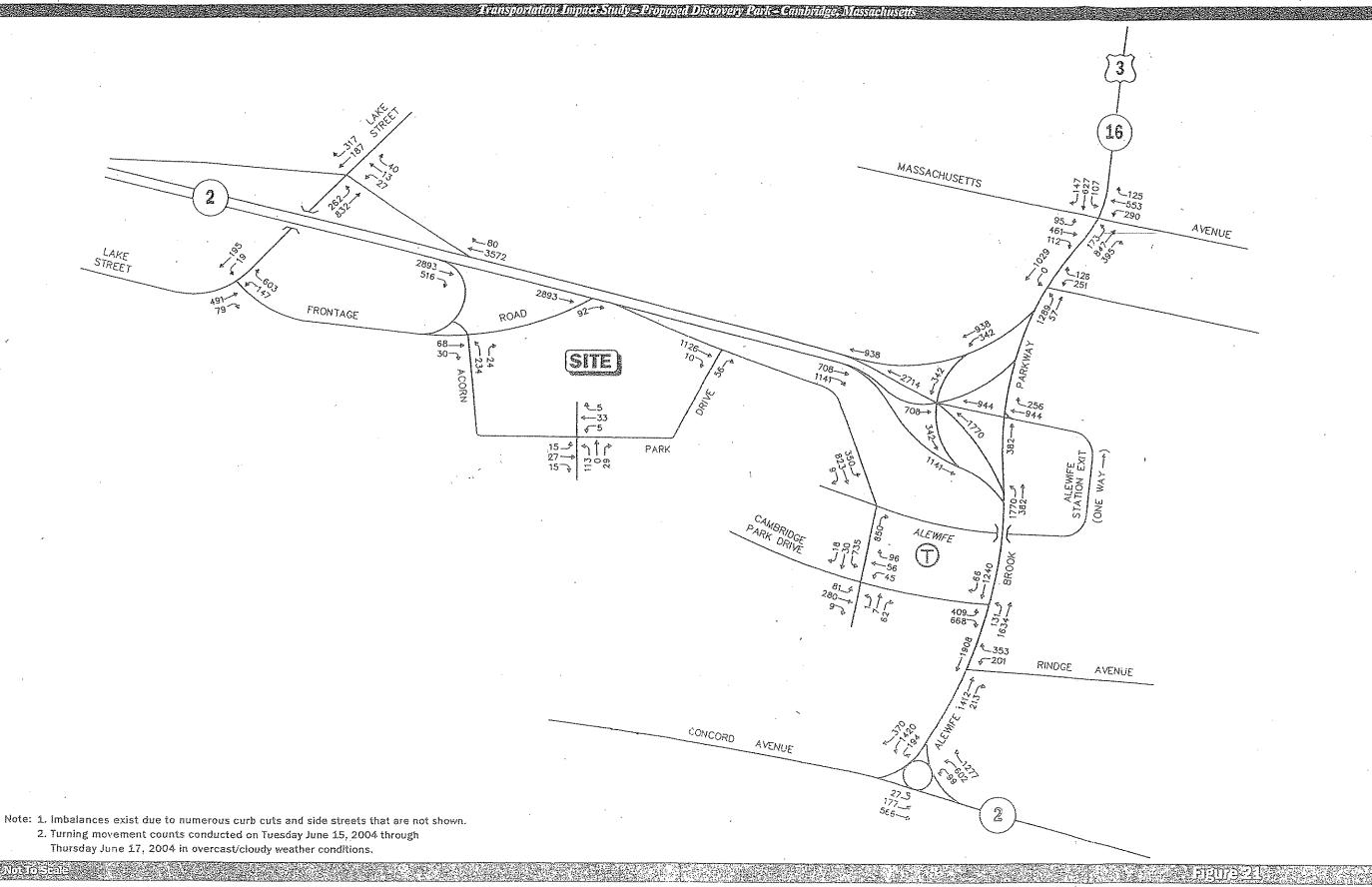




Wanasse & Associates Inc.
Transportation Engineers & Planners

NOTE: RAW DATA CAY BE FOUND IN THE APPENDIX TO THE JULY EXXY TRANSPORTATION IMPACT STUDY FOR CAMBRIDGE DISCOURLY PARK

2004 Baseline Weekday Morning Peak Hour Traffic Volumes





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